National Aeronautics and Space Administration

### ACCESSION NUMBER RANGES

Accession numbers cited in this Supplement fall within the following ranges:

IAA (A-10000 Series) A80-10001 - A80-21040 STAR (N-10000 Series) N80-10001 - N80-16022

Previous publications announced in this series/subject category include:

DOCUMENT	DATE	COVERAGE
NASA SP-7042	April 1974	January 1968 - December 1973
NASA SP-7043(01)	May 1974	January 1, 1974 – March 31, 1974
NASA SP-7043(02)	November 1974	April 1, 1974 – June 30, 1974
NASA SP-7043(03)	February 1975	July 1, 1974 - September 30, 1974
NASA SP-7043(04)	May 1975	October 1, 1974 – December 31, 1974
NASA SP-7043(05)	August 1975	January 1, 1975 - March 31, 1975
NASA SP-7043(06)	October 1975	April 1, 1975 – June 30, 1975
NASA SP-7043(07)	December 1975	July 1, 1975 – September 30, 1975
NASA SP-7043(08)	February 1976	October 1, 1975 - December 31, 1975
NASA SP-7043(09)	April 1976	January 1, 1976 - March 31, 1976
NASA SP-7043(10)	July 1976	April 1, 1976 – June 30, 1976
NASA SP-7043(11)	October 1976	July 1, 1976 – September 30, 1976
NASA SP-7043(12)	January 1977	October 1, 1976 - December 31, 1976
NASA SP-7043(13)	April 1977	January 1, 1977 – March 31, 1977
NASA SP-7043(14)	July 1977	April 1, 1977 – June 30, 1977
NASA SP-7043(15)	October 1977	July 1, 1977 - September 30, 1977
NASA SP-7043(16)	January 1978	October 1, 1977 – December 31, 1977
NASA SP-7043(17)	April 1978	January 1, 1978 – March 31, 1978
NASA SP-7043(18)	August 1978	April 1, 1978 – June 30, 1978
NASA SP-7043(19)	October 1978	July 1, 1978 – September 30, 1978
NASA SP-7043(20)	January 1979	October 1, 1978 – December 31, 1978
NASA SP-7043(21)	April 1979	January 1, 1979 – March 31, 1979
NASA SP-7043(22)	July 1979	April 1, 1979 – June 30,1979
NASA SP-7043(23)	October 1979	July 1, 1979 – September 30, 1979
NASA SP-7043(24)	January 1980	October 1, 1979 – December 31, 1979

This bibliography was prepared by the NASA Scientific and Technical Information Facility operated for the National Aeronautics and Space Administration by Informatics Information Systems Company.

# **ENERGY**

## A Continuing Bibliography

With Indexes

Issue 25

A selection of annotated references to unclassified reports and journal articles that were introduced into the NASA scientific and technical information system—and announced—from January 1 through March 31, 1980 in

- Scientific and Technical Aerospace Reports (STAR)
- International Aerospace Abstracts (IAA).

### INTRODUCTION

This issue of Energy: A Continuing Bibliography with Indexes (NASA SP-7043(25)) lists 1428 reports, journal articles, and other documents announced between January 1, 1980 and March 31, 1980 in Scientific and Technical Aerospace Reports (STAR) or in International Aerospace Abstracts (IAA). The first issue of this continuing bibliography was published in May 1974 and succeeding issues are published quarterly.

The coverage includes regional, national and international energy systems; research and development on fuels and other sources of energy; energy conversion, transport, transmission, distribution and storage, with special emphasis on use of hydrogen and of solar energy. Also included are methods of locating or using new energy resources. Of special interest is energy for heating, lighting, for powering aircraft, surface vehicles, or other machinery.

Each entry in the bibliography consists of a standard bibliographic citation accompanied in most cases by an abstract. The listing of the entries is arranged in two major sections, IAA Entries and STAR Entries in that order. The citation, and abstracts when available, are reproduced exactly as they appeared originally in IAA or STAR including the original accession numbers from the respective announcement journals. This procedure, which saves time and money accounts for the slight variation in citation appearances.

Five indexes -- subject, personal author, corporate source, contract number, and report number -- are included. The indexes are of the cumulating type throughout the year, with the fourth quarterly publication containing abstracts for the fourth quarter and index references for the four quarterly publications.

## AVAILABILITY OF CITED PUBLICATIONS

#### IAA ENTRIES (A80-1000C Series)

All publications abstracted in this Section are available from the Technical Information Service, American Institute of Aeronautics and Astronautics, Inc. (AIAA), as follows: Paper copies of accessions are available at \$7.00 per document up to a maximum of 40 pages. The charge for each additional page is \$0.25. Microfiche (1) of documents announced in IAA are available at the rate of \$3.00 per microfiche on demand, and at the rate of \$1.25 per microfiche for standing orders for all IAA microfiche. The price for the IAA microfiche by category is available at the rate of \$1.50 per microfiche plus a \$1.00 service charge per category per issue. Microfiche of all the current AIAA Meeting Papers are available on a standing order basis at the rate of \$1.50 per microfiche.

Minimum air-mail postage to foreign countries is \$1.00 and all foreign orders are shipped on payment of pro-forma invoices.

All inquiries and requests should be addressed to AIAA Technical Information Service. Please refer to the accession number when requesting publications.

#### STAR ENTRIES (N80-10000 Series)

One or more sources from which a document announced in *STAR* is available to the public is ordinarily given on the last line of the citation. The most commonly indicated sources and their acronyms or abbreviations are listed below. If the publication is available from a source other than those listed, the publisher and his address will be displayed on the availability line or in combination with the corporate source line.

Avail: NTIS. Sold by the National Technical Information Service. Prices for hard copy (HC) and microfiche (MF) are indicated by a price code followed by the letters HC or MF in the STAR citation. Current values for the price codes are given in the tables on page viii.

Documents on microfiche are designated by a pound sign (#) following the accession number. The pound sign is used without regard to the source or quality of the microfiche.

Initially distributed microfiche under the NTIS SRIM (Selected Research in Microfiche) is available at greatly reduced unit prices. For this service and for information concerning subscription to NASA printed reports, consult the NTIS Subscription Section, Springfield, Va. 22161.

NOTE ON ORDERING DOCUMENTS: When ordering NASA publications (those followed by the \* symbol), use the N accession number. NASA patent applications (only the specifications are offered) should be ordered by the US-Patent-Appl-SN number. Non-NASA publications (no asterisk) should be ordered by the AD, PB, or other report number shown on the last line of the citation, not by the N accession number. It is also advisable to cite the title and other bibliographic identification.

Avail: SOD (or GPO). Sold by the Superintendent of Documents, U.S. Government Printing Office, in hard copy. The current price and order number are given following the availability line. (NTIS will fill microfiche requests, at the standard \$3.50 price, for those documents identified by a # symbol.)

<sup>(1)</sup> A microfiche is a transparent sheet of film, 105 by 148 mm in size, containing as many as 60 to 98 pages of information reduced to micro images (not to exceed 26:1 reduction).

- Avail: NASA Public Document Rooms. Documents so indicated may be examined at or purchased from the National Aeronautics and Space Administration, Public Documents Room (Room 126), 600 Independence Ave., S.W., Washington, D.C. 20546, or public document rooms located at each of the NASA research centers, the NASA Space Technology Laboratories, and the NASA Pasadena Office at the Jet Propulsion Laboratory.
- Avail: DOE Depository Libraries. Organizations in U.S. cities and abroad that maintain collections of Department of Energy reports, usually in microfiche form, are listed in *Energy Research Abstracts*. Services available from the DOE and its depositories are described in a booklet, *DOE Technical Information Center Its Functions and Services* (TID-4660), which may be obtained without charge from the DOE Technical Information Center.
- Avail: Univ. Microfilms. Documents so indicated are dissertations selected from *Dissertation Abstracts* and are sold by University Microfilms as xerographic copy (HC) and microfilm. All requests should cite the author and the Order Number as they appear in the citation.
- Avail: USGS. Originals of many reports from the U.S. Geological Survey, which may contain color illustrations, or otherwise may not have the quality of illustrations preserved in the microfiche or facsimile reproduction, may be examined by the public at the libraries of the USGS field offices whose addresses are listed in this introduction. The libraries may be queried concerning the availability of specific documents and the possible utilization of local copying services, such as color reproduction.
- Avail: HMSO. Publications of Her Majesty's Stationery Office are sold in the U.S. by Pendragon House, Inc. (PHI), Redwood City, California. The U.S. price (including a service and mailing charge) is given, or a conversion table may be obtained from PHI.
- Avail: BLL (formerly NLL): British Library Lending Division, Boston Spa, Wetherby, Yorkshire, England. Photocopies available from this organization at the price shown. (If none is given, inquiry should be addressed to the BLL.)
- Avail: Fachinformationszentrum, Karlsruhe. Sold by the Fachinformationszentrum Energie, Physik, Mathematik GMBH, Eggenstein Leopoldshafen, Federal Republic of Germany, at the price shown in deutschmarks (DM).
- Avail: Issuing Activity, or Corporate Author, or no indication of availability. Inquiries as to the availability of these documents should be addressed to the organization shown in the citation as the corporate author of the document.
- Avail: U.S. Patent and Trademark Office. Sold by Commissioner of Patents and Trademarks, U.S. Patent and Trademark Office, at the standard price of 50 cents each, postage free.
- Other availabilities: If the publication is available from a source other than the above, the publisher and his address will be displayed entirely on the availability line or in combination with the corporate author line.

#### **GENERAL AVAILABILITY**

All publications abstracted in this bibliography are available to the public through the sources as indicated in the *STAR Entries* and *IAA Entries* sections. It is suggested that the bibliography user contact his own library or other local libraries prior to ordering any publication inasmuch as many of the documents have been widely distributed by the issuing agencies, especially NASA. A listing of public collections of NASA documents is included on the inside back cover.

### SUBSCRIPTION AVAILABILITY

This publication is available on subscription from the National Technical Information Service (NTIS). The annual subscription rate for the quarterly supplements is \$50.00 domestic; \$100.00 foreign. All questions relating to the subscriptions should be referred to NTIS, Attn: Subscriptions, 5285 Port Royal Road, Springfield, Virginia 22161.

#### ADDRESSES OF ORGANIZATIONS

American Institute of Aeronautics and Astronautics Technical Information Service 555 West 57th Street, 12th Floor New York, New York 10019

British Library Lending Division, Boston Spa, Wetherby, Yorkshire, England

Commissioner of Patents and Trademarks U.S. Patent and Trademark Office Washington, D.C. 20231

Department of Energy Technical Information Center P.O. Box 62 Oak Ridge, Tennessee 37830

ESA-Information Retrieval Service ESRIN Via Galileo Galilei 00044 Frascati (Rome) Italy

Her Majesty's Stationery Office P.O. Box 569, S.E. 1 London, England

NASA Scientific and Technical Information Facility P.O. Box 8757 B. W. I. Airport, Maryland 21240

National Aeronautics and Space
Administration
Scientific and Technical Information
Branch (NST-41)
Washington, D.C. 20546

National Technical Information Service 5285 Port Royal Road Springfield, Virginia 22161 Pendragon House, Inc. 899 Broadway Avenue Redwood City, California 94063

Superintendent of Documents U.S. Government Printing Office Washington, D.C. 20402

University Microfilms
A Xerox Company
300 North Zeeb Road
Ann Arbor, Michigan 48106

University Microfilms, Ltd. Tylers Green London, England

U.S. Geological Survey 1033 General Services Administration Building Washington, D.C. 20242

U.S. Geological Survey 601 E. Cedar Avenue Flagstaff, Arizona 86002

U.S. Geological Survey 345 Middlefield Road Menlo Park, California 94025

U.S. Geological Survey Bldg. 25, Denver Federal Center Denver, Colorado 80225

Fachinformationszentrum Energie, Physik, Mathematik GMBH 7514 Eggenstein Leopoldshafen Federal Republic of Germany

### NTIS PRICE SCHEDULES

# Schedule A STANDARD PAPER COPY PRICE SCHEDULE

(Effective January 1, 1980)

Price	Page Range	North American	Foreign
Code		Price	Price
A01	Microfiche	\$ 3.50	\$ 5.25
A02	001-025	5.00	10.00
A03	026-050	6.00	12.00
A04	051-075	7.00	14.00
A05	076-100	8.00	16.00
A06	101-125	9.00	18.00
A07	126-150	10.00	20.00
80A	151-175	11.00	22.00
A09	.176-200	12.00	24.00
A10	201-225	13.00	26.00
A11	226-250	14.00	28.00
A12	251-275	15.00	30.00
A13	276-300	16.00	32.00
A14	301-325	17.00	34.00
A15	326-350	18.00	36.00
A16	351-375	19.00	38.00
A17	376-400	20.00	40.00
A18	401-425	21.00	42.00
A19	426-450	22.00	44.00
A20	451-475	23.00	46.00
A21	476-500	24.00	48.00
A22	501-525	25.00	50.00
A23	526-550	26.00	52.00
A24	551-575	27.00	54.00
A25	576-600	28.00	56.00
A99	601-up	1/	2/

- 1/ Add \$1.00 for each additional 25 page increment or portion thereof for 601 pages up.
- 2/ Add \$2.00 for each additional 25 page increment or portion thereof for 601 pages and more.

## Schedule E EXCEPTION PRICE SCHEDULE

Paper Copy & Microfiche

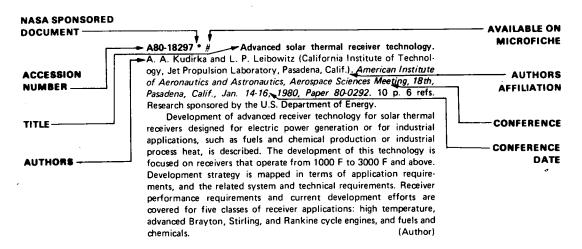
Price	North American	Foreign
Code	Price	Price
E01	\$ 5.50	\$ 11.50
E02	6.50	13.50
E03	8.50	17.50
E04	10.50	21.50
E05	12.50	25.50
E06	14.50	29.50
E07	16.50	33.50
EO8	18.50	37.50
E09	20.50	41.50
E10	22.50	45.50
E11	24.50	49.50
E12	27.50	55.50
E13	30.50	61.50
E14	33.50	67.50
E15	36.50	73.50
E16	39.50	79.50
E17	42.50	85.50
E18	45.50	91.50
E19	50.50	100.50
E20 .	60.50	121.50
E99 - Write for quote		
NO1	28.00	40.00

## TABLE OF CONTENTS

IAA Entries		
Subject Index		<b>A</b> -1
Personal Author	Index	B - 1
Cornorate Source	Index	
Corporate Cource	Index	D- '
Contract Number	index	E '
Report/Accession	Number Index	E -
TV	PICAL CITATION AND ABSTRACT FROM <i>Star</i>	?
111	FICAL CITATION AND ADDITION THOM STATE	•
NASA SPONSORED		- AVAILABLE ON
ACCESSION NUMBER	N80-15553*# Technical Report Services, Rocky River, Ohio.  EVALUATION OF FEASIBILITY OF PRESTRESSED CONCRETE FOR USE IN WIND TURBINE BLADES  Seymour Leiblein, D. S. Londahl, Donn B. Furlong, and Mark E. Dreier Sep. 1979—119 p refs Prepared in cooperation with Tuthill Pump Co., San Rafael, Calif. and Paragon Pacific, Inc., El	MICROFICHE CORPORATE SOURCE
AUTHORS	Segundo, Calif.  (Contracts NAS3-20596; NAS3-30813; EX-76-I-01-1028; NASA Order C-25906)  (NASA-CR-159725; DOE/NASA/5906-79/1) Avail: NTIS—  HC A06/MF A01 CSCL 108—	PUBLICATION DATE
CONTRACT . OR GRANT	A preliminary evaluation of the feasibility of the use of prestressed concrete as a material for low cost blades for wind turbines was conducted. A baseline blade design was achieved for an experimental wind turbine that met aerodynamic and structural requirements. Significant cost reductions were indicated for volume production. Casting of a model blade section showed no fabrication problems. Coupled dynamic analysis	AVAILABILITY SOURCE
REPORT	revealed that adverse rotor tower interactions can be significant with heavy rotor blades. R.C.T.	COSATI CODE

## TYPICAL CITATION AND ABSTRACT FROM IAA

NUMBER-



## A Listing of Energy Bibliographies Contained In This Publication:

- 1. Hydrogen as a fuel. Citations from the international aerospace abstracts data base p0094 N80-10397
- 2. Hydrogen production. Citations from the international aerospace abstracts data base p0094 N80-10401
- 3. Hydrogen storage as a hydride. Citations from the international aerospace abstracts data base p0094 N80-10402
- Waste utilization as an energy source. Citations from the International Aerospace Abstracts
   Data Base
   p0102 N80-10667
- 5. Aircraft fuel. Citations from the International Aerospace Abstracts Data Base p0102 N80-10668
- 6. Microwave heating: Industrial applications. Citations from the engineering data base p0102 N80-10674
- 7. Lead batteries, volume 2. Citations from the engineering index data base p0103 N80-10681
- 8. National environmental / energy workforce assessment, phase 3. Air programs --- bibliography p0117 N80-11670
- 9. Thermal performance of buildings and building envelope systems: An annotated bibliography p0145 N80-13680
- 10. Geothermal energy. Part 1: Exploration, volume 3. Citations from the NTIS data base p0148 N80-13715
- 11. Geothermal energy. Part 2: Corrosion and equipment, volume 3. Citations from the NTIS data base p0148 N80-13716
- 12. Geothermal energy. Part 3: Technology and general studies, volume 3. Citations from the NTIS data base p0148 N80-13717
- 13. Geothermal energy, volume 3. Citations from the Engineering Index data base p0148 N80-13718
- Geothermal energy. Part 3: Technology and general studies, volume 4. Citations from the NTIS data base
   p0148 N80-13719
- 15. Geothermal energy, volume 4. Citations from the Engineering Index data base p0148 N80-13720

### **APRIL 1980**

### IAA ENTRIES

A80-10028 Experimental techniques and mathematical models in the study of waste pyrolysis and gasification. A. G. Buekens, J. J. R. Mertens, J. G. E. Schoeters, and P. C. Steen (Brussel, Vrije Universiteit, Brussels, Belgium). (World Recycling Congress, 1st, Basel, Switzerland, Mar. 6-8, 1978.) Conservation and Recycling, vol. 3, no. 1, 1979, p. 1-23. 36 refs.

Thermogravimetric analysis coupled with gas chromatography and mass spectrometry is used to study the weight loss of various samples and monitor the composition of the evolved volatile products. In addition, pyrolysis gas chromatography is applied for the scanning of pyrolysis rates and product distributions over a wide range of experimental conditions. Attention is given to the testing of a two phase model of a fluidized bed reactor for the case of polystyrene pyrolysis. Finally, the effect of the operation parameters on the production of styrene is discussed, noting that the computed results were in fair agreement with the literature data.

M.E.P.

A80-10029 Resource recovery systems costs. B. M. Fabuss, D. B. Spencer, and R. L. Schroeder (Raytheon Service Co., Burlington, Mass.). (World Recycling Congress, 1st, Basel, Switzerland, Mar. 6-8, 1978.) Conservation and Recycling, vol. 3, no. 1, 1979, p. 77-89. U.S. Environmental Protection Agency Contract No. 68-01-4380.

The investment cost, operating cost and overall economics of resource recovery plants handling 500 to 2,000 tons per day of municipal solid waste were determined. These plants recover only refuse derived fuel and ferrous metal from the waste. Additional economics have been developed for plants recovering other products.

(Author)

A80-10043 \* # The erosion/corrosion of small superalloy turbine rotors operating in the effluent of a PFB coal combustor. G. R. Zellars, S. M. Benford, A. P. Rowe, and C. E. Lowell (NASA, Lewis Research Center, Cleveland, Ohio). U.S. Department of Energy and Electric Power Research Institute, Conference on Advanced Materials for Alternate Fuel Capable Directly Fired Heat Engines, Castine, Me., July 30-Aug. 3, 1979, Paper. 25 p. 10 refs.

The operation of a turbine in the effluent of a pressurized fluidized bed (PFB) coal combustor presents serious materials problems. Synergistic erosion/corrosion and deposition/corrosion interactions may favor the growth of erosion-resistant oxides on blade surfaces, but brittle cracking of these oxides may be an important source of damage along heavy particle paths. Integrally cast alloy 713LC and IN792 + Hf superalloy turbine rotors in a single-stage turbine with 6% partial admittance have been operated in the effluent of a PFB coal combustor for up to 164 hr. The rotor erosion pattern exhibits heavy particle separation with severe erosion at the leading edge, pressure side center, and suction side trailing

edge at the tip. The erosion distribution pattern gives a spectrum of erosion/oxidation/deposition as a function of blade position. The data suggest that preferential degradation paths may exist even under the targeted lower loadings (less than 20 ppm).

S.D.

A80-10109 # Conceptual design, realization and experimentation of a concentration photovoltaic generator - SOPHOCLE 1000 prototype (Conception, réalisation et expérimentation d'un générateur photovoltaique à concentration - Prototype SOPHOCLE 1000). D. Folléa. Toulouse III, Université, Docteur-Ingénieur Thesis, 1979. 85 p. 21 refs. In French.

The work is concerned with the development of a photovoltaic generator of the concentration type that provides improvements in efficiency and cost. The conceptual design, based on thermal stress, leads to a relatively flexible structure characterized by passive cooling, a concentration level of approximately 40 suns, and a surface of cells equal to 4 sq cm. Results of experiments performed on the SOPHOCLE 1000 (SOlaire PHOtovoltaique à Concentration Limitée d'Energie) prototype confirmed the homogeneity of the structure, and provided performance estimates at the prefabrication stage. Future work should consider the development of highefficiency (no less than 30 percent) solar cells, along with the realization of active-cooling structures.

A80-10199 # An engine fuel chemistry solution to the problem of jet fuel supplies (Khimmotologicheskie resheniia problemy resursov reaktivnykh topliv). V. A. Piskunov, K. S. Chernova, P. A. Mikheichev, N. P. Iurukovskii, and V. N. Zrelov. Khimiia i Tekhnologiia Topliv i Masel, no. 10, 1979, p. 35-38. 8 refs.

Fuel refining techniques are discussed as means of increasing jet fuel supplies. It is shown that expanding the boiling range of jet fuel allows a greater yield from crude oil, at the expense of diesel fuel fractions, and increases the concentration of aromatic hydrocarbons in the jet fuel fractions. Investigations of the behavior of lower-quality fuels (with elevated crystallization temperatures) under simulated flight temperatures and means of controlling fuel flow and combustion properties under these conditions are discussed. Results indicating the decrease of low temperature Jet A-1 fuel fluidity with paraffin content and the increase in combustion chamber temperature with increasing hydrocarbon content are presented, emphasizing the applicability of engine fuel chemical analysis to the interactions of fuel properties, aviation technology and operational conditions.

A.L.W.

A80-10223 # A mathematical model for a future hydrogen power system (Model matematic pentru un viitor sistem energetic hidrogenic). I. Ursu (Bucuresti, Universitatea, Bucharest, Rumania) and M. Pavelescu (Institutul de Reactori Nucleari Energetici, Bucharest, Rumania). Studii si Cercetari de Fizica, vol. 31, no. 8, 1979, p. 815-841. 13 refs. In Rumanian.

The paper introduces a mathematical model for a global energetic system based on hydrogen as an energy vector. The global system is defined as being formed by two partial systems, namely: an electric power and a hydrogen thermal power system. The best way to utilize nuclear energy for hydrogen production is investigated. It is

shown that HTGR's and GCFBR's are the most attractive for this goal and therefore such reactors are considered as part of the second partial system. By application of the mathematical model it was possible - by help of a STEH code - to obtain numerous results which allow various interesting conclusions concerning this future power system.

(Author)

A80-10226 Rapid devolatilization and partial gasification of coal in an entrained dust reactor (Schnellentgasung und Teilvergasung von Steinkohle im Flugstaubreaktor). K. Hedden, R. Hauk, and L. Huber (Karlsruhe, Universität, Karlsruhe, West Germany). Erdöl und Kohle Erdgas Petrochemie vereinigt mit Brennstoff-Chemie, vol. 32, Sept. 1979, p. 423-429. 11 refs. In German. Research supported by the Bundesministerium für Forschung und Technologie.

The article surveys the results of laboratory experiments carried out to determine the optimum conditions for a high degree of desulfurization during rapid devolatilization and partial gasification. The yields and the composition of the gaseous and liquid products obtained during devolatilization are determined with regard to the application of the process for the production of chemical raw materials. In the investigation of rapid devolatilization it was found that more volatiles and therefore more sulfur were expelled by the rapid heating of carbon particles than by chamber carbonization. Finally, it is reported that more than 85 vol.-% of the gas obtained during devolatilization were methane, hydrogen, and carbon monoxide, while hydrogen, carbon monoxide, and carbon dioxide were the main constituents of the gas from partial gasification. M.E.P.

A80-10228 Models of worldwide energy demand and consumption (Modelle für Energiebedarf und verbrauch in weltweitem Rahmen). W. Häfele and L. Schrättenholzer (Internationales Institut für angewandte Systemanalyse, Laxenburg, Austria). Erdöl und Kohle Erdgas Petrochemie vereinigt mit Brennstoff-Chemie, vol. 32, Sept. 1979, p. 447-451. In German.

An attempt is made to present two globally consistent scenarios for the development of the energy system in the next 50 years. The scenarios are based on high and low increases in energy demand. They consider a 5 kW and 3 kW per person energy consumption rate, respectively, in the year 2030. Factors considered and discussed include world population, economic development, energy demand, demand coverage, and economic consequences. In conclusion it is noted that other factors considered include an analysis of the forseeable development of the world market for crude oil, a study of global restrictions, and determining the potential of alternate energy carriers and technologies.

M.E.P.

A80-10285 A review of in situ composites for nonstructural applications. A. S. Yue (California, University, Los Angeles, Calif.). In: Conference on In Situ Composites, 3rd, Boston, Mass., November 29-December 1, 1978, Proceedings.
Lexington, Mass., Ginn Custom Publishing, 1979, p. 171-184. 36 refs. Research supported by the U.S. Department of Energy and U.S. Air Force.

A review of directionally solidified (DS) eutectics for electronic, magnetic, thermomagnetic, and superconducting applications and potential uses for optical waveguides and energy conversion is presented. The anisotropy of resistances utilized in electronic devices, and image transmission properties of optical fiber eutectics are discussed. Applications for solar cell applications are described, noting that a lamellar (or fiberlike) semiconductor eutectic can be used for converting solar radiation into electricity. Finally, it is suggested that it is necessary to select a correct eutectic system for each application, and to obtain as nearly perfect a microstructure as possible for nonstructural applications.

A.T.

A80-10306 Microstructural objectives for hightemperature alloys in advanced energy systems. C. T. Sims (General Electric Co., Gas Turbine Div., Schenectady, N.Y.). In: MiCon 78: Optimization of processing, properties, and service performance through microstructural control; Proceedings of the Symposium, Houston, Tex., April 3-5, 1978. Philadelphia, Pa., American Society for Testing and Materials, 1979, p. 480-513.

This paper reviews six advanced systems in a broad fashion helpful in orientation of engineering and technical personnel not directly involved in such developments. These are coal utilization systems including coal liquefaction, coal gasification and pressurized fluid beds, nuclear systems including liquid metal fast breeder reactors (LMFBR), and high-temperature gas reactors (HTGR). In concert with these systems, yet cross-functioning, superalloy technologies are discussed for combined-cycle electrical plants and high-temperature heat exchangers. Then potential applications and problems for superalloys in the systems, are identified, drawing from this base examples that might typically be applied, utilizing these to discuss ideal microstructures one may find.

(Author)

A80-10321 The electric trolley bus - Revisited. J. W. Schumann (Sacramento Regional Transit District, Sacramento, Calif.) and B. J. Hanson (Louis T. Klauder and Associates, Philadelphia, Pa.). *Traffic Quarterly*, vol. 33, Oct. 1979, p. 577-587.

New interest in public transit, as a way to provide relief from the energy crisis and to reduce pollution, has led to a reevaluation of the potential of the electric trolley bus (ETB). This paper reviews current trends in the ETB field and discusses such new ETB system consideration as improved vehicle design, electric power distribution systems, electric power generation/conversion, off-wire systems, and network operations. Attention is also given to such factors as community esthetics and pollution, energy consumption, and research needs.

B.J.

A80-10323 Back to the central city - Myths and realities. G. Sternlieb (Rutgers University, New Brunswick, N.J.) and J. W. Hughes (Rutgers University, Livingston and New Brunswick, N.J.). Traffic Quarterly, vol. 33, Oct. 1979, p. 617-636. 5 refs.

The paper brings together available statistical data for speculation on the future of the central city, with primary emphasis on demographic trends and their policy implications. It is noted that the future demand for central city transportation is a function of its resident population, nonresident workers, and nonresidents attracted to the city for a variety of non-job related purposes. It is concluded that, subject to limitations and financial resource, the central city core transportation issue is largely being blunted not by new means of transit but rather by decline in need.

B.J.

A80-10324 Forecasting automobile fleet fuel efficiency.
F. L. Mannering and K. C. Sinha (Purdue University, Lafayette, Ind.). *Traffic Quarterly*, vol. 33, Oct. 1979, p. 637-648. 10 refs. Research supported by Purdue University and Indiana State Highway Commission.

The paper presents a modeling procedure developed as part of a computer simulation model used to project statewide highway financing and system performance. This automobile fleet fuel efficiency model considers impacts of prevailing economic conditions, governmental policy decisions regarding new vehicle fuel efficiency standards, and auto usage characteristics, all of which are vital to the accurate projection of automobile fleet fuel efficiency. The basic approach is to: (1) determine the number of automobiles in use by model year, (2) estimate automobile fuel efficiencies by model year, and (3) establish relative automobile usage by model year. Projection of automobile fleet fuel efficiency was necessary to estimate future highway fuel consumption, revenues derived from fuel taxes, and other related factors affecting highway transportation system performance.

A80-10349 # Hydrogen - The fuel of the future (Vodorod - Toplivo budushchego). A. N. Podgornyi and I. L. Varshavskii, Kiev, Izdatel'stvo Naukova Dumka, 1978. 136 p. 129 refs. In Russian.

The application of hydrogen as fuel in various areas of the economy is examined. Consideration is given to the physico-chemical properties of hydrogen, chemical, thermal, electrochemical and

thermochemical means of obtaining hydrogen, and hydrogen transport and storage in the form of metal hydrides. The use of hydrogen as a fuel in internal combustion, Stirling, rocket, jet and heat engines is discussed, and results of experimental investigations on internal combustion engines based on hydrogen and hydrogen-gasoline-air mixtures are reported.

A.L.W.

A80-10474 Power supply requirements for a tokamak fusion reactor. J. N. Brooks and R. L. Kustom (Argonne National Laboratory, Argonne, III.). Nuclear Technology, vol. 46, Nov. 1979, p. 61-81. 10 refs. Research supported by the U.S. Department of Energy.

The power supply requirements for a 7-m major radius commercial tokamak reactor have been examined, using a system approach combining models of the reactor and poloidal coil set, plasma burn cycle and magnetohydrodynamics calculations, and power supply characteristics and cost data. A conventional system using a motor-generator flywheel set and solid-state rectifier/inverter power supplies was studied in addition to systems using a homopolar generator, superconducting energy storage inductor, and dump resistors. The requirements and cost of the power supplies depend on several factors but most critically on the ohmic heating ramp time used for startup. Long ramp times (at least about 8 s) seem to be feasible, from the standpoint of resistive volt-second losses, and would appear to make conventional systems quite competitive with nonconventional ones, which require further research and develop-(Author) ment.

A80-10524 Salinity gradient power - Utilizing vapor pressure differences. M. Olsson (California, University, La Jolla; Foundation for Ocean Research, San Diego, Calif.), G. L. Wick (Institute for Transcultural Studies, Los Angeles, Calif.), and J. D. Isaacs (California, University, La Jolla; Foundation for Ocean Research, San Diego, Calif.). Science, vol. 206, Oct. 26, 1979, p. 452-454. 12 refs. Grant No. NOAA-04-6-158-4410.

By utilizing the vapor pressure difference between high-salinity and low-salinity water, one can obtain power from the gradients of salinity. This scheme eliminates the problems associated with conversion methods in which membranes are used. The method tested in the present investigation gave higher conversion efficiencies than membrane methods. Furthermore, hardware and techniques being developed for ocean thermal energy conversion may be applied to this approach to salinity gradient energy conversion. (Author)

A80-10613 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine. N. V. Lokai and I. I. Mosin. (Aviatsionnaia Tekhnika, vol. 22, no. 1, 1979, p. 41-46.) Soviet Aeronautics, vol. 22, no. 1, 1979, p. 30-34. 5 refs. Translation.

Some means of achieving maximum degree of regeneration in a heat exchanger with heat pipes are investigated by extending some previous analysis methods for heat exchangers with intermediate heat carrier. Two conditions are found which must be satisfied in order to achieve maximum degree of regeneration: (1) the heat transmitting power of the heat pipes must exceed the heat release intensity from both the gas and air directions; and (2) two dimensionless parameters for the gas and air sides must be equal.

P.T.H.

A80-10823 # Development of an aircraft-derivative gas turbine with high performance and large output. Y. Shimura (Ishikawajima-Harima Heavy Industries Co., Ltd., Turbine and Compressor Engineering Div., Tokyo, Japan) and K. Takeo (Ishikawajima-Harima Heavy Industries Co., Ltd., Turbine Design Dept., Tokyo, Japan). IHI Engineering Review, vol. 12, July 1979, p. 29-32.

The design and performance of the 50,000 horsepower IM5000 industrial gas turbine are examined. Attention is given to the gas generator which is an industrial version of the GE CF-6 turbofan engine. The power turbine is described, noting that it can be used for generating 50/60-Hz power and mechanical drive applications. Areas of the power turbine examined include aerodynamic design, basic construction design concept, and component design such as buckets,

vanes, rotor, transition duct, turbine casing, exhaust casing, and exhaust scroll. Finally, it is reported that tests revealed higher performance than predicted, and that NO(x) emissions are reduced with a water injection system.

M.E.P.

A80-10842 Energy conservation through recycling. D. C. Wilson (Atomic Energy Research Establishment, Waste Research Unit, Harwell, Oxon, England). International Journal of Energy Research, vol. 3, Oct.-Dec. 1979, p. 307-323. 53 refs.

Best estimates of the energy savings due to recycling one ton of several materials are suggested by means of a critical review of the literature. Further the use of these estimates is demonstrated by a number of illustrative applications. It is shown that while substantial energy savings may be made by recycling most metals or paper, the savings from reclaiming glass cullet are marginal, although there is potential for energy conservation through the use of returnable as opposed to nonreturnable bottles. It is reported that the recycling of materials saves about 5% of the total energy requirement of the U.K. Finally, the recovery of fuel products and/or materials from solid waste is also shown to be an attractive and efficient energy source.

M.E.P

A80-10843 Second-law analysis of solar-thermal processes. J. F. Kreider. International Journal of Energy Research, vol. 3, Oct.-Dec. 1979, p. 325-331. 6 refs.

The second law of thermodynamics provides an analytic framework for the assessment of the potential displacement of fossil fuels by solar energy. The most promising areas are those which have entropy levels corresponding to the entropy level of the solar resource as converted to heat in various types of solar collectors. Since the entropy of solar heat can be partitioned by the means of collection - e.g., by the collector concentration ratio - solar can be matched much more precisely to many tasks at temperatures up to 300 C than can fossil fuels which are low entropy sources now widely misused for high entropy tasks. (Author)

A80-10844 The assessment of actual wind power availability in Ireland. J. Haslett and E. Kelledy (Trinity College, Dublin, Ireland). International Journal of Energy Research, vol. 3, Oct. Dec. 1979, p. 333-348. 18 refs.

A80-10845 A new approach to low cost large area selective surfaces for photothermal conversion. B. K. Gupta, F. K. Tiwari, O. P. Agnihotri, and S. S. Mathur (Indian Institute of Technology, New Delhi, India). International Journal of Energy Research, vol. 3, Oct.-Dec. 1979, p. 371-377. 8 refs.

Selective black paint coatings have been prepared by coating reflective metal particles with a layer of selective black material. The coated particles were mixed in a binder and applied easily as a thin layer onto aluminum or galvanized iron (G.I.) sheet. Three selective black materials, namely CuO, CuS and PbS + CuS have been deposited on zinc metal powder. The solar absorptance of the coatings is about 0.95 and the emittance is about 0.4. The thickness of the coatings was about 20 to 30 microns. The emissivity decreases as the thickness increases, while the solar absorptivity does not change appreciably. The improvement in the collector efficiency, which is the ratio of the temperature increase above the temperature of the standard panel to the temperature increase of the standard panel above the ambient temperature, is estimated to be around 11 per cent. The process is potentially a low cost one for large scale (Author) application in solar photothermal conversion.

A80-10846 Performance of an inexpensive constant flow solar collector/storage system in ground. M. S. Sodha, A. Srivastava, G. N. Tiwari, S. C. Kaushik (Indian Institute of Technology, New Delhi, India), and M. A. S. Malik (Kuwait Institute of Scientific Research, Safat, Kuwait). *International Journal of Energy Research*, vol. 3, Oct.-Dec. 1979, p. 379-387.

This paper presents an analysis of the performance of an inexpensive constant flow solar collector/storage system, which has been validated by experiments. The system consists of a network of pipes buried in the ground, the top surface of the ground being

blackened by black board paint spray and suitably glazed. The heat can be extracted by flow of fluid in the pipes at a constant flow rate. It is seen that for a 7 cm depth of the plane of heat retrieval and 8 l/min flow rate of water, the collection efficiency of the system is 20.0 per cent. The efficiency increases with flow rate and decreases with the depth of the plane of heat retrieval. (Author)

A80-10847 Using a fin with a parabolic concentrator. R. N. Singh, S. S. Mathur, and T. C. Kandpal (Indian Institute of Technology, New Delhi, India). International Journal of Energy Research, vol. 3, Oct.-Dec. 1979, p. 393-395.

The consequences of using a fin collector in focusing solar collectors is examined and attention is given to the variation of concentration ratios for a cylindrical parabolic concentration employing a fin receiver. The effect of rim angle variation on the receiver size in both the flat plate and fin receiver cases are examined. It is determined that the concentration ratio attains a maximum value at a rim angle of 90 deg, while the flat plate receiver obtains a maximum at half the inclination.

C.F.W.

A80-10848 The photo-electrochemical production of C-C bonds from carbon dioxide. V. Guruswamy and J. O. Bockris (Texas A & M University, College Station, Tex.). International Journal of Energy Research, vol. 3, Oct.-Dec. 1979, p. 397-399. Research supported by the South Australian Energy Committee.

Using the experimental setup and procedure described in the present paper, it proved possible to use solar light to reduce CO2 to C-C bonds, with electricity as a by-product. Competitive reduction of water was avoided by passing CO2 into a cathode chamber containing a saturated solution of an aprotic solvent (DMF). It is seen that electrochemical photosynthesis should be justified if an efficiency of photoelectrochemical decomposition of somewhat more than 5 per cent would be attainable with solar light.

V.P.

A80-10879 A comprehensive model for photovoltage generation at metal electrodes in contact with solutions of fluorescent dyes. T. I. Quickenden and G. K. Yim (Western Australia, University, Nedlands, Australia). *Journal of Physical Chemistry*, vol. 83, Oct. 18, 1979, p. 2796-2804. 30 refs.

A comprehensive model for the processes associated with the generation of photovoltages at metal electrodes in contact with fluorescent dye solutions is developed, and relationships between open-circuit photovoltage and irradiance are derived. The model takes into account intermolecular oxidation-reduction reactions in the bulk of the solution and at the electrode, electrodic chargetransfer reactions, conversion of bulk species to surface species with or without the possibility of adsorption, direct photochemical pathways and photochemical side reactions. Steady-state analyses of the model, which are presented in full in an appendix separate from the present paper, lead to complicated relationships between open-circuit photovoltage, irradiance, the dark concentrations of various species and the various rate constants. The relationships are found to simplify to logarithmic relationships for cases of low photolytic concentration perturbation and open-circuit voltage, and linear relationships in cases of low irradiance. A.L.W.

A80-10944 Lignite fuel and power-plant availability. T. G. Woo (Stone and Webster Engineering Corp., Boston, Mass.). *IEEE Transactions on Reliability*, vol. R-28, Oct. 1979, p. 279-282. 13 refs.

The characteristics and handling of lignite fuel in lignite-fueled electric-generating plants are studied. Plant reliability problems associated with burning of Northern Great Plains (NGP) lignite are discussed along with information on present NGP lignite-fueled plants. Two plant arrangements are considered: a single boiler and turbine and a single boiler and two half-size boilers. Order-of-magnitude costs are compared to determine cost differentials between a 500 MW single-boiler plant and a 800 MW double-boiler plant using lignite and subbituminous coal. It is noted that lignite is inexpensive, abundant, and relatively easy to mine.

A80-11019 Unleaded gasoline shortages and fuel switching
- The potential impact in Southern California. T. F. Heinsheimer, J.
S. Nevitt, and M. A. Nazemi (South Coast Air Quality Management
District, El Monte, Calif.). Air Pollution Control Association,
Journal, vol. 29, Oct. 1979, p. 1064-1066. 5 refs.

The impact on ozone air quality of the use of leaded fuels in automobiles equipped with catalytic converters, due to a shortage of unleaded fuels, is assessed for Southern California. Results of statistical analyses of the percentage of catalyst-equipped cars forced to undergo catalyst deactivation as a result of three or more tankfuls of leaded gasoline in the event of unleaded gasoline shortfalls of various magnitudes are presented, as well as the maximum ozone concentrations expected as the result of the tenfold increase of reactive hydrocarbon emission from deactivated converters and the numbers of ozone episode days as a result. It is pointed out that even a 6% shortfall of unleaded gasoline supplies lasting for 44 weeks will deactivate 50% of automobile catalytic converters, leading to an increase in the maximum yearly ozone concentration in Southern California of from 0.40 to 0.50 ppm and a dramatic increase in the numbers of first, second and third stage health advisory episode days in the Los Angeles Basin. A.L.W

A80-11140 A policy-sensitive model of technology assessment. R. S. Ahmad and A. N. Christakis (Battelle Columbus Laboratories, Washington, D.C.). *IEEE Transactions on Systems, Man, and Cybernetics,* vol. SMC-9, Sept. 1979, p. 450-458. 17 refs. Research supported by the Battelle Memorial Institute; U.S. Environmental Protection Agency Contract No. 68-02-2622.

Two approaches to technology assessment are examined and their implications for the actual conduct of technology assessment are briefly discussed. The epistemological differences between the approaches are studied and it is determined that the fundamental differences between the two lead to divergent conceptions of technology. The first approach is driven by the question 'how can society be organized to take full advantage of technology and to mitigate its adverse impacts', while the second one concerns itself with the question 'what does it mean to choose and deploy a certain technology'. The broader relationships between technology assessment, social change, and public policy making are reexamined and it is determined that the assessment of technologies entails sociopolitical choices since the two are both reciprocally linked. Attention is given to the linkage between technical-analytic and policy-analytic components of technology assessment and a policy-sensitive model is proposed. C.F.W.

A80-11331 # Minimum ignition energies and quenching distances of methanol blends. T. Yano and K. Ito (Hokkaido University, Sapporo, Japan). Hokkaido University, Faculty of Engineering, Bulletin, June 1979, p. 31-37.

A study of minimum ignition energies and quenching distances for methanol, iso-octane, and iso-octane/methanol blends in the 100 to 150C range and at 1 atm pressure is presented. Minimum ignition energies were measured with a conventional automobile ignition system and expressed by the primary current of the ignition coil, and the measurement methods of the quenching distances used the teflon-flanged electrode technique. The experimental results indicated that the minimal value of the minimum ignition energies, and the minimum quenching distances of methanol and iso-octane air mixtures were attained with a slightly rich mixture; the iso-octane/methanol blend yields larger flammability ranges than those of fuel in air. The quenching distances of iso-octane/methanol blend depend on that of iso-octane and do not become larger than that of either fuel.

A.T.

A80-11333 The effects of axial conduction on collector heat removal factor. W. F. Phillips (Utah State University of Agriculture and Applied Science, Logan, Utah). Solar Energy, vol. 23, no. 3, 1979, p. 187-191. 9 refs.

A closed form solution is presented which predicts the performance of a solar collector and includes the effects of axial conduction in the receiver. The results are presented in terms of the

well known collector heat removal factor which is shown to be a function of three dimensionless design parameters. The error, which is introduced by neglecting axial conduction, was found to be less than 30 per cent, for all collectors and less than 12 per cent for most collectors.

(Author)

A80-11334 Theory of the direct coupling between D.C. motors and photovoltaic solar arrays. J. A. Roger (Lyon I, Université, Lyons, France). Solar Energy, vol. 23, no. 3, 1979, p. 193-198. 5 refs.

Direct coupling between photovoltaic solar panels and various d.c. motors (series shunt and separate excitation) is theoretically studied as a function of the load. Operating curves are given in some specific cases (centrifugal pumps and fans). Attention is given to the problem of matching the mechanical system with the panels, and to the problem of starting under different light flux densities. (Author)

A80-11335 The optimal design of solar cell grid lines. R. S. Scharlack (Thermo Electron Corp., Waltham, Mass.). *Solar Energy*, vol. 23, no. 3, 1979, p. 199-201.

The shape of grid lines or fingers, used to reduce conductive losses in photovoltaic cells, is shown to be optimized when the current flux in the line remains constant. This result is derived for cells of arbitrary geometry assuming the fraction of the cell area shaded is small. The shapes of grid lines for three special cases are provided. Optimal shapes for grid lines are also derived for cases when the area of the lines is a significant fraction of the cell area.

(Author)

A80-11336 Concentration ratio and efficiency in thermophotovoltaics. R. L. Bell (Varian Associates, Inc., Palo Alto, Calif.). Solar Energy, vol. 23, no. 3, 1979, p. 203-210.

In thermophotovoltaics, concentrated sunlight is used to heat a 'black body' cavity which re-emits lower-temperature radiation. Solar cells immersed in the cavity can absorb the higher energy photons present and convert these to electric power with high efficiency. A generalization of this scheme is considered as a model for calculating the conversion efficiency expected for a real thermophotovoltaic system. This is shown to depend strongly on the concentration ratio used, as well as other factors. It is shown that conversion efficiencies above 30 per cent will require optics concentration ratios of the order of 10,000, for attainable values of other parameters. Cell conversion efficiencies exceed 60 per cent; however system performance is strongly degraded by parasitic losses and by re-radiation from the entrance aperture of the system. (Author)

A80-11337 A theoretical study of laminar free convection in 1-D solar induced flows. O. A. Barra and E. P. Carratelli (Calabria, Università, Cosenza, Italy). Solar Energy, vol. 23, no. 3, 1979, p. 211-215. 11 refs.

The effectiveness of natural circulation and ventilation systems based on the 'solar chimneys' principle has been tested for a number of years at numerous sites, but thermal and fluid mechanical aspects of their operation need to be fully understood before conclusive results can be supplied; a long term research work has therefore been undertaken by the authors, including both experimentation in two test sites in Italy and numerical simulation. In the present paper the heat transfer equation for one dimensional laminar flow is numerically solved with the appropriate radiative boundary conditions. Temperature fields calculated in this way are then employed to evaluate air density variations and consequently the upward driving force available to overcome head losses in the air circulation. Optical plate spacing in steady state conditions appears to be strongly dependent on head losses occurring outside the collecting section and on winter or summer use of the system; it shows a softer dependence on incident solar energy fluxes. (Author)

A80-11338 Design of a small thermochemical receiver for solar thermal power. T. A. Chubb, J. J. Nemecek, and D. E. Simmons (U.S. Navy, Naval Research Laboratory, Washington, D.C.). *Solar Energy*, vol. 23, no. 3, 1979, p. 217-221. 5 refs.

It is noted that the capture of solar thermal energy by means of chemical conversion provides an attractive means for collection of solar energy. A converter has been designed for operation at the focus of a 7 m diameter paraboloid. The converter is constructed from a multi-passage ceramic extrusion, which is wound into a spiral form prior to firing. The innermost wrap is designed to operate with a cavity-facing surface heated to 1000 C. In the passages adjacent to this surface SO3 is catalytically dissociated into SO2 and O2. The eight outer wraps are used for heat exchange between an inflowing SO3 rich gas stream and an outflowing SO2 rich gas stream. (Author)

A80-11339 Derivation of method for predicting long term average energy delivery of solar collectors. M. Collares-Pereira (Chicago, University, Chicago, III.) and A. Rabl. Solar Energy, vol. 23, no. 3, 1979, p. 223-233. 13 refs. Research supported by the Instituto Nacional de Investigação Cientifica and Centro de Fisica de Matéria Condensada; Contract No. EY-77-S-2446. DOE Task 3403,01.

Based on the utilizability concept of Hottle, Whillier, Liu and Jordan, an analytical model has been developed to predict the long term average energy delivery of almost any solar collector. The presentation has been split into two separate papers: a users guide (without explanation of the origin of the formulas) and the present paper (which derives these formulas and documents the validation). The model is applicable whenever the average operating temperature of the collector (receiver surface, fluid inlet, fluid outlet or mean fluid) is known. If the operating temperature is not known explicitly the model will give adequate results when combined with the f-chart of Klein and Beckman. By contrast to the alternative of hour-byhour simulation, prediction methods such as the present model and the f-chart offer the advantages of automatically averaging over year-to-year weather fluctuations and of being sufficiently simple to permit hand calculation of long term performance. In a comparison with hourly summations of insolation data, the present model has been found to have an error of less than 3 per cent for the radiation available to a solar collector and an error of about 5 per cent for the heat delivery of solar thermal collectors. (Author)

A80-11340 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors. M. Collares-Pereira (Chicago, University, Chicago, III.) and A. Rabl. Solar Energy, vol. 23, no. 3, 1979, p. 235-253. 28 refs. Research supported by the U.S. Department of Energy, Instituto Nacional de Investigação Científica, and Centro de Fisica de Matéria Condensada.

The Liu and Jordan method of calculating long term performance of flat plate collectors (1963) is generalized to concentrating and nonconcentrating collectors. The collector is characterized by optical efficiency, heat loss, and extraction efficiency, and the tracking mode, and an operating temperature is assumed. A conversion factor is used which multiplies the total horizontal insolation to yield the long term useful energy delivered by the collector, and this factor depends on many variables including temperature, concentration, latitude, and clearness index. Formulas for flat plate, compound parabolic concentrator, and concentrators with east-west tracking axis, polar tracking axis, and 2-axis tracking showed that concentrating collectors can outperform the flat plate even for low temperature, cloudy climate applications. This method has been validated against hourly weather data showing better than 3 percent accuracy for the long term average radiation.

A80-11341 Solar electric generating system resource requirements. R. C. Enger (U.S. Air Force Academy, Colorado Springs, Colo.) and H. Weichel (USAF, Institute of Technology, Wright-Patterson AFB, Ohio). *Solar Energy*, vol. 23, no. 3, 1979, p. 255-261, 16 refs.

The paper presents an analysis of the potential consumption of materials, land, water, manpower, energy, and money by four proposed solar electric generating systems: a terrestrial solar thermal, a terrestrial photovoltaic, an orbiting solar reflector, and a satellite solar power system. It is found that the terrestrial solar thermal system would require less manpower, less energy of production, and

less money per megawatt of electrical generating capacity, than would the extra-terrestrial systems. Finally, it is noted that an extra terrestrial system would place the nation in a vulnerable position in times of war.

M.E.P.

A80-11342 Some solar energy programmes in the United Nations system. B. Châtel (United Nations, Office for Science and Technology, New York, N.Y.). (International Colloquium on Solar Energy for Development, Tokyo, Japan, Feb. 5-10, 1979.) Solar Energy, vol. 23, no. 3, 1979, p. 263-269. 16 refs.

The recent activities in the United Nations organization on solar and wind energy, particularly for the developing countries, are outlined. Programs of the Economic and Social Council, Advisory Committee on Science and Technology, and the Committee on Natural Resources which worked on surveys and classification of non-conventional energy sources are described. The Economic Commission on Europe is engaged in environmental aspects of energy production, which also covers solar energy, and the Economic Commission for Africa participated in a mission on application of solar energy in the Sahelian region. The financial institutions include the U.N. Development Program which sponsored solar projects in Algeria and Cyprus, the World Bank, and the U.N. Industrial Development Organization. Finally, specialized agencies like UNESCO, which organizes international conferences on solar energy and research centers in Africa and Asia, World Health Organization, and World Meteorological Organization are discussed.

A80-11343 A cheap method of improving the performance of roof type solar stills. V. A. Akinsete and C. U. Duru (Lagos, University, Lagos, Nigeria). *Solar Energy*, vol. 23, no. 3, 1979, p. 271, 272.

The paper presents the results of a test comparing the performance of two types of roof type solar stills. It is reported that the use of charcoal to line the basin of a typical still results in improved productivity. The charcoal is used to reduce the thermal inertia of the still, which is possible for the following reasons: (1) charcoal exhibits capillary action and is hence capable of maintaining a wetted surface whenever it is partially immersed in a liquid; (2) charcoal absorbs incident radiation, and (3) the rough surface scatters rather than reflects incident radiation which reduces reflected losses. In conclusion it is noted that the production rate is increased the most in the morning and on cloudy days when values of direct radiation are low.

M.E.P.

A80-11347 Nonlinear modification of resonance-cone trajectories. J. R. Wilson and K. L. Wong (Princeton University, Princeton, N.J.). *Physical Review Letters*, vol. 43, Nov. 5, 1979, p. 1392-1394. 12 refs. Contract No. EY-76-C-02-3073.

Experimental measurements of the modification of the trajectory of a focused resonance cone as a result of the ponderomotive force in a cylindrical plasma are reported. A resonance cone was launched from one ring of a 36-ring antenna located at one end of the plasma in 0.5- to 10 microsec rf bursts and axially and radially driven double-tip probes were used to detect the electric field. The locations of the electric field maximums for linear and nonlinear powers and of the focus indicate that trajectory is bent toward the cylinder axis and the focus is moved closer to the exciter, in agreement with theory. The electron-plasma-wave resonance-cone-propagation technique also indicates the decrease in plasma density to be in accordance with predictions and electron heating not to be the source of the trajectory shift.

A.L.W.

A80-11349 Tearing modes in a plasma with magnetic braiding. P. K. Kaw, E. J. Valeo, and P. H. Rutherford (Princeton University, Princeton, N.J.). *Physical Review Letters*, vol. 43, Nov. 5, 1979, p. 1398-1401. 14 refs. Contracts No. F44620-75-C-0037; No. EY-76-C-02-3073.

Linear and nonlinear properties of macroscopic tearing modes driven by anomalous electron viscosity effects associated with the

braiding of magnetic field lines in a tokamak plasma are examined. It is shown that in the linear case, tearing modes with m=1 have a growth rate which is proportional to the fifth root of the ratio between the hydrodynamic and viscous decay times, while in the nonlinear case for m greater than or equal to 2 the width of the instability scales as the cube root of the time. Implications for the growth times of viscosity-driven tearing modes relative to resistive modes and the development of disruptive instabilities in tokamak plasmas are considered.

A80-11368 The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms. J. Shewchun, D. Burk, R. Singh, J. Dubow (McMaster University, Hamilton, Ontario, Canada; Brown University, Providence, R.I.; Colorado State University, Fort Collins, Colo.), and M. Spitzer. Journal of Applied Physics, vol. 50, Oct. 1979, p. 6524-6533. 12 refs. Contract No. E(04-3)-1203.

The theory of semiconductor-insulator-semiconductor (SIS) solar cells and the experimental characteristics of indium tin oxide (ITO)-SiOx-silicon cells have been reported in previous publications. There appear to be no reports in the literature on SIS devices of any type with conversion efficiencies greater than about 12%. Theoretically, 20% efficiency should be possible using 0.2 ohm cm p-type silicon with a 12-A interfacial layer. This paper seeks to identify the various possible loss mechanisms (and the range of efficiency loss associated with each of them) that seem to be impeding the achievement of the theoretical limit. To determine the losses, the dark I-V characteristics as a function of temperature and performance parameters as a function of the intensity of illumination (up to 6 suns) have been examined. The intensity measurements reveal in a very distinct way the presence of an interfacial layer and serve to confirm the applicability of the theoretical model. (Author)

A80-11369 Coal conversion technologies - Some health and environmental effects. S. C. Morris, P. D. Moskowitz, W. A. Sevian, L. D. Hamilton (Brookhaven National Laboratory, Upton, N.Y.), and S. Silberstein (National Bureau of Standards, Washington, D.C.). Science, vol. 206, Nov. 9, 1979, p. 654-662. 34 refs. Contract No. EY-76-C-02-0016.

Selected health and environmental effects of four coal conversion and four existing technologies are compared. For each technology, the emission estimates for complete fuel cycles, including all steps in fuel use from extraction to the end use of space and water heating by electricity or direct combustion, are discussed. Quantitative occupational health and safety estimates are presented for the extraction, transportation, distribution, processing, and conversion activities associated with each technology. Qualitative estimates of health damage due to polycyclic organic matter and reduced sulfur are examined. The increasing order of some negative environmental effects and health damages was determined to be: (1) direct combustion of natural gas and oil, (2) direct combustion of synthetic gas and oil, (3) central-station electric power produced from synthetic gas, coal, and combustion of synthetic liquid fuels. Attention is given to the compliance and conflict of these technologies with amendments such as the Clean Air Act. C.F.W.

A80-11370 Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975. J. G. Asbury, C. Maslowski, and R. O. Mueller (Argonne National Laboratory, Argonne, III.). Science, vol. 206, Nov. 9, 1979, p. 679-681. 8 refs. Research supported by the U.S. Department of Energy.

Solar availability for space heating on coldest-weather days has been determined from an analysis of SOLMET data tapes. The tapes contain hourly readings of insolation and ambient temperature over the period from 1953 through 1975. Scatter diagrams of insolation versus heating degree-days, compiled on a daily basis, indicate a wide variation in the insolation level, even during coldest-weather periods. For all but one of the eight sites studied, the peak-day backup energy requirement of the solar system was in excess of 85 percent of the peak-day energy requirement of the conventional (nonsolar) heating system.

A80-11394 # Is there a chance for OTEC. G. L. Dugger (Johns Hopkins University, Laurel, Md.). Astronautics and Aeronautics, vol. 17, Nov. 1979, p. 36-42. 20 refs.

The paper discusses the steady growth of OTEC technology, the design plans for pilot energy plants, and the industrial readiness for this alternate energy source. Several new components are examined that will enhance and speed up OTEC implementation, including a 30 Mw set of titanium-tubed, shell-and-tube heat exchangers, a low-cost, folded-aluminum tube, shell-less heat exchanger, as well as designs for cold-water pipe 40Mw pilot plants. It is concluded that OTEC offers great potential for significant contributions to national and worldwide energy needs.

C.F.W.

A80-11400 Soft and hard energy paths - The roads not taken. M. Stiefel. *Technology Review*, vol. 82, Oct. 1979, p. 56-66. 27 refs.

The paper considers political, technical, and philosophical aspects of the energy problem. The 'hard' energy path which relies on the continued expansion of centralized technologies to increase energy supply, will use oil, coal, and nuclear fission. The 'soft' path technologies use renewable energy flows, such as from the sun or wind, and require solar collectors, hydroelectric plants and wind for electric power. Cost estimates of energy technologies including nuclear power, coal and solar are discussed, and energy demand forecasts for U.S. are summarized. Comparison of hard and soft options indicates that the hard-path will collapse due to massive energy waste, but a single energy path is not likely.

A80-11448 Analysis of tarry fractions in emissions resulting from low temperature oxidation of brown coal (Analyse der hochsiedenden Emissionsanteile von Schwelungen und Bränden bei der Gewinnung von Braunkohle). V. Kusy and V. Hruby. Staub-Reinhaltung der Luft, vol. 39, Oct. 1979, p. 363-367. 24 refs. In German.

The gas chromatography as a basic method for tarry emission fractions from the low-temperature oxidation of brown coal has been used. Besides of paraffines C9 till C27, phenol, cresols and xylenols also heterocyclic oxigenous compounds have been determined by the combination of the preparation and analytic gas chromatography. Very little multinucleous aromatic hydrocarbons were present. The quantitative determination of the components has been made from the differences of the retention indexes on the polar and non-polar stationary phase. (Author)

A80-11544 # Effect of kinetics of thermonuclear reaction products upon D-T plasma parameters. K. Gac, A. Gacek, J. Tyl (Institute of Plasma Physics and Laser Microfusion, Warsaw, Poland), and S. Kaliski; Journal of Technical Physics, vol. 20, no. 2, 1979, p. 131-149. 8 refs.

The paper analyzes the effects of the kinetics of fusion products on the hydrodynamic parameters of the plasma. Different transport models for the fusion products are considered, and it is shown that neutron kinetics has a significant effect on fusion energy even for small-scale systems. Attention is also given to the role of such factors as dynamic friction forces, the method of fusion energy transmission, and the amount of neutron energy remaining in the plasma.

A80-11545 # Optimization of neutron yield in conical system at explosion-induced compression. W. Gluchowski, R. Swierczynski (Institute of Plasma Physics and Laser Microfusion, Warsaw, Poland), and S. Kaliski. *Journal of Technical Physics*, vol. 20, no. 2, 1979, p. 151-162. 9 refs.

The paper presents a numerical optimization analysis of neutron yield for a conical fusion system involving explosive plasma compression. The initial pressure of deuterium gas and the thickness of the imploded polyethylene shell were the parameters subject to optimization. An optimal yield of  $7 \times 10$  to the 7th neutrons was obtained for deuterium, while a yield of  $5 \times 10$  to the 9th neutrons was obtained for D-T.

A80-11546 # Optimization of argon admixture in deuterium fusion with non-stationary action of plane shock waves. K. Gac, K.

Jach, W. Stepniewski (Institute of Plasma Physics and Laser Microfusion, Warsaw, Poland), and S. Kaliski. *Journal of Technical Physics*, vol. 20, no. 2, 1979, p. 163-171. 7 refs.

The paper presents a numerical analysis of the complete system of equations of hydrodynamics and ionization kinetics describing the propagation of shock waves in a deuterium-argon mixture. It is shown that maximum temperatures are obtained in this shock compression process (in the case of constant boundary velocity and plane symmetry) for argon additions of approximately 4%.

A80-11612 Kinetics of the processes in a plasma produced by an electron beam in a dense inert gas. A. V. Eletskii and V. D. Kulagin (Akademiia Nauk SSSR? Institut Atomnoi Energii, Moscow, USSR). (Fizika Plazmy, vol. 5, Jan.-Feb. 1979, p. 98-105.) Soviet Journal of Plasma Physics, vol. 5, Jan.-Feb. 1979, p. 55-59. 9 refs. Translation.

In the present paper, the conversion of the energy imparted by a beam to a gas is quantitatively analyzed, and the parameters of the quasi-stationary plasma generated in this process are calculated. The contribution of elastic and inelastic electron-atom collisions and free-electron production processes to the electron energy balance is calculated.

V.P.

A80-11642 # Performance of disk generators for open-cycle MHD power generation. T. Nakamura and M. K. Jenkins (Stanford University, Stanford, Calif.). *Journal of Energy*, vol. 3, July-Aug. 1979, p. 217-226. 28 refs. Contract No. EX-76-C-2341.

The performance characteristics of disk MHD generators are analyzed for the combustion products of a western coal at typical baseload conditions. Three disk generator configurations - radial outflow, radial inflow, and radial inflow-outflow - are considered for both impulse and reaction modes of operation. It is shown that for enthalpy extraction, generator isentropic efficiency, and electric fields to be sustained along the generator channel and the reaction mode radial inflow configuration is preferable for the baseload disk generator. The radial inflow-outflow configuration, which is a combination of the inflow and outflow geometries, could attain higher performance than the radial inflow configuration with substantially reduced generator size. Comparisons of disk generators with linear generators show that the performance of the disk generator is comparable to that of the diagonal generator, while the magnet cost for the disk generator is expected to be less than for linear generators. In view of these results, together with the advantages associated with simple channel construction, it is concluded that the disk generator is a potentially effective alternative to linear generators for baseload power generations. (Author)

A80-11643 # Experimental demonstration of the diffuser-augmented wind turbine concept. B. L. Gilbert and K. M. Foreman (Grumman Aerospace Corp., Fluid Dynamics Laboratory, Bethpage, N.Y.). Journal of Energy, vol. 3, July-Aug. 1979, p. 235-240. 5 refs. Contract No. EY-76-C-2-2616-A001.

The surface area requirements of an efficient diffuser has been reduced by innovative use of the external wind to produce a cost-effective wind energy conversion system (WECS). Three sets of tests were conducted on very compact diffusers: 1) on small-scale models using screens to simulate a real turbine; 2) on ten times larger scale models with screens; and 3) on a real turbine. The first-generation nonoptimized diffuser-augmented wind turbine (DAWT) configuration is a conical, 60 deg included angle diffuser with an area ratio of 2.78 controlled by two tangential injection slots for boundary-layer control. This baseline model provided over three times the power of a conventional WECS with the same turbine efficiency, diameter, and free wind. An optimized configuration should provide augmentations greater than four. (Author)

A80-11644 # Electricity generation from jet-stream winds. C. A. J. Fletcher and B. W. Roberts (Sydney, University, Sydney, Australia). Journal of Energy, vol. 3, July-Aug. 1979, p. 241-249. 12 refs. Research supported by the National Energy, Research, Development, and Demonstration Council of Australia.

The feasibility of generating electricity from jet-stream winds has been investigated. Analysis of published meteorological data indicates that annual average power densities approaching 20 kW/sq m are available in the jet-stream altitudes over the complete west-east extent of Australia at a latitude of about 30 deg S. Computer-based optimization studies indicate that a 100-MW power station based on tethered aerodynamic generating platforms located at a jet-stream altitude would generate electricity at capital and operating costs that are competitive with other methods of electricity generation. The design of the tethered aerodynamic generating platform requires a high lift-to-weight ratio platform housing high power-to-weight ratio diffuser-augmented wind turbines and tethered by a high strengthto-weight ratio cable. Key design parameters include the turbine power coefficient and power-drag coefficient, the rated speed, and the stall speed. The required turbine area is determined primarily by the power coefficient and the rated speed. The cable weight depends directly on the drag associated with the maximum (rated) power generation which follows from the choice of rated speed. The wing area of the aerodynamic platform is fixed usually by the stall speed.

A80-11645 # The pedal wind turbine. T. Vinayagalingam (West Indies, University, St. Augustine, Trinidad and Tobago). Journal of Energy, vol. 3, July-Aug. 1979, p. 254-256.

A vertical-axis, resistance-type turbine has been developed for wind energy utilization in developing nations. The device employs cycling of the rectangular turbine sail at different orientations to the wind to ensure smooth operation, and resembles a bicycle pedal. Theoretical analysis of the quasi-steady performance of the turbine indicates that a two-sail version of the pedal turbine will exhibit more uniform torque characteristics than the two-bucket Savonius rotor, thus reducing the stalling problem, and will have a peak power coefficient of 0.13. Higher efficiencies are anticipated with a slack sail which assumes a bucket shape under wind pressure, and wind-tunnel tests of a scale model are in progress.

A.L.W.

A80-11671 # Improving the reliability of capacitance batteries in power grids with higher-harmonic sources (Povyshenie nadezhnosti kondensatsionnykh batarei v setiakh s istochnikami vysshikh garmonik). A. N. Bokhan (Belorusskii Politekhnicheskii Institut, Minsk, Belorussian SSR). Energetika, vol. 22, Aug. 1979, p. 87-89, 5 refs. In Russian.

A80-11709 # Interactive analysis methods for resource mapping. A. K. Turner (Environment Consultants, Inc., Lakewood, Colo.). In: New technology for mapping; Proceedings of the International Symposium, Ottawa, Canada, October 2-6, 1978.

Ottawa, Canada, Canadian Institute of Surveying, 1979, p. 735-754. 6 refs.

An interactive composite mapping system called GMAPS (General Map Analysis and Planning System), has been used to evaluate energy development plans, and make resource and environmental assessments. GMAPS is superior to the traditional transparent overlay methods because it is much cheaper, faster and more quantitative. Using GMAPS, variables and interactions can be easily modified to rapidly investigate an unlimited range of development alternatives. An associated mapping system GCARS, (Generalized Computer Aided Route Selection), can generate a set of alternative corridors between specified termini by applying linear programming methods to GMAPS models. The corridors are ranked for suitability according to environmental and socio-economic criteria. (Author)

A80-11816 Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures. P. Girard, M. Huneau, C. Rabasse, and J. C. Leyer (Ecole Nationale Supérieure de Mécanique et d'Aérotechnique, Poitiers, France). In: Symposium /International/ on Combustion, 17th, Leeds, England, August 20-25, 1978, Proceedings. Pittsburgh, Pa., Combustion Institute, 1979, p. 1247-1255. 20 refs. Research supported by the Commissariat à l'Energie Atomique, Electricité de France, and Institut de Recherche sur les Transports.

To observe nonsteady flame propagation across gaseous mixtures of nonuniform composition, a technique based on an improvement of the soap bubble method is proposed. Two applications of the method are presented. The first refers to constant volume combustion and is designed to model flame propagation in the cylinder of a stratified charge internal combustion engine where a hemispherical rich charge surrounds the ignition point. Effects of stratification on the final pressure and combustion time are reported for hydrogen and propane air mixtures. The second application concerns flame propagation in free space, through layered hemispherical charges. Results which relate mainly to the correlation between the generated pressure field and the flame front velocity variations induced by concentration steps are used to describe some of the effects of nonuniform composition on the blast effects of actual vapor cloud explosions.

(Author)

A80-11825 # Solar panels exposed to cosmic rays (Solnechnye batarei v usloviiakh vozdeistviia kosmicheskoi radiatsii). L. B. Kreinin and G. M. Grigor'eva. Itogi Nauki i Tekhniki, Seriia Issledovanie Kosmicheskogo Prostranstva, vol. 13, 1979, p. 3, 5-128. 232 ref. In Bussian

Data on radiation damage of solar cells are reviewed, and the mechanisms of damage by electrons and protons are discussed. The topics covered include the influence of the orbital parameters on the rate of solar panel degradation; methods of shielding spacecraft panels, and methods of improving the resistance of solar panels to cosmic rays.

V.P.

A80:11826 Annual review of energy. Volume 4. Edited by J. M. Hollander (California, University, Berkeley, Calif.), M. K. Simmons (Solar Energy Research Institute, Golden, Colo.), and D. O. Wood (MIT, Cambridge, Mass.). Palo Alto, Calif., Annual Reviews, Inc., 1979. 567 p. \$17.

An overview of the CONAES study is presented a long with reviews of several major energy supply resources and technologies, including the global uranium resource, the North Sea oil field, U.S. coal production, photochemical conversion of solar energy, and the interfacing of solar wind systems with electric grids. Topics related to energy economics and econometrics include three assessments of energy supply-demand models and projections, and a discussion of issues in the design of utility rate structures. Energy end-use is represented by a review of possible impacts of telecommunications on energy consumption. International policy-related reviews cover energy situation of Canada and the question of international assurance of nuclear fuel supply.

A80-11827 United States energy alternatives to 2010 and beyond - The CONAES study. H. Brooks (Harvard University, Cambridge, Mass.) and J. M. Hollander (California, University, Berkeley, Calif.). In: Annual review of energy. Volume 4.

Palo Alto, Calif., Annual Reviews, Inc., 1979, p. 1-70.

56 refs.

The CONAES (Committee on Nuclear and Alternative Energy Systems) study examined contextual relationships among the many factors likely to be involved in determining United States energy policy, and, in particular, emphasized the importance of energy demand considerations in planning future U.S. energy supplies. It is concluded that there is a great deal of scope for reducing energy growth without appreciably sacrificing GNP growth or changing nonenergy consumption patterns. Although there is some uncertainty in this conclusion, it is likely that E/GNP one half of today's and conceivably one third of today's could be reached before significant impact on GNP growth is felt. It is recommended that reduction of energy demand growth be accorded the highest priority in United States energy policy.

A80-11828 The compatibility of wind and solar technology with conventional energy systems. E. Kahn (California, University, Berkeley, Calif.). In: Annual review of energy. Volume 4. Palo Alto, Calif., Annual Reviews, Inc., 1979, p.

313-352. 102 refs. Research supported by the U.S. Department of Energy

A wide range of issues in the engineering and economics of wind and solar energy is reviewed. It is concluded that the various effects of introducing these devices into conventional energy systems are only partially understood; the present analytical tools are rather limited in their ability to grasp the total problem. In the short run, engineering issues involving resource assessment and appropriate scale seem particularly important. The more complex problems of structural optimality in energy systems emerge only in a longer range perspective. Economic analysis should probably concentrate first on financial risk. Regulatory structure is an on-going area where policy research is fruitful.

A80-11829 Photochemical conversion and storage of solar energy. J. R. Bolton (Western Ontario, University, London, Canada) and D. O. Hall (King's College, London, England). In: Annual review of energy. Volume 4. Palo Alto, Calif., Annual Reviews, Inc., 1979, p. 353-401. 190 refs. Research supported by the Natural Sciences and Engineering Research Council of Canada.

Following a review of some of the general principles and limitations of the conversion of light energy to work, the paper examines in detail the only process that operates reliably and with an appreciable conversion efficiency, namely photosynthesis by plants, algae, and bacteria. These systems already produce 3 times 10 to the 21st J of stored energy per annum (which is 10 times the world's annual energy use). Attention is given to some of the ways in which photosynthesis can be mimicked and extended to produce other products such as hydrogen, reduced carbon compounds, ammonia, as well as electricity. Development of artificial systems for the photochemical conversion and storage of solar energy is critically examined. Both homogeneous and heterogeneous systems are considered, the latter involving valuable developments in photoelectrochemistry. Finally, an attempt is made to answer some economic questions relevant to some applications. S.D.

A80-11830 Frontiers in energy demand modeling. R. S. Hartman (Boston University, Boston; MIT, Cambridge, Mass.). In: Annual review of energy. Volume 4. Palo Alto, Calif., Annual Reviews, Inc., 1979, p. 433-466. 110 refs.

The paper introduces and critiques a series of energy demand models and explores the particularly promising directions for future energy demand modeling. Some detailed suggestions for advancing the frontiers of energy demand modeling are made. Important issues addressed by frontier energy demand modeling efforts include: (1) explicit analytical treatment of both long-run and short-run demand, for the purpose of identifying behavioral characteristics and policy variables specifically relevant to each; (2) appropriate level of disaggregation of energy end-use, for the purpose of permitting technological specificity in treating fuels and the fuel-burning capital stock; (3) appropriate treatment of new technologies; and (4) utilization of appropriate models and data for residential consumer choice and for dynamic modeling of industrial and commercial demand.

A80-11831 Assessing energy policy models - Current state and future directions. M. Greenberger (Johns Hopkins University, Baltimore, Md.) and R. Richels (Electric Power Research Institute, Palo Alto, Calif.). In: Annual review of energy. Volume 4. Palo Alto, Calif., Annual Reviews, Inc., 1979, p. 467-500. 41 refs.

The paper presents a brief review of the energy policy modeling process and considers two kinds of model analysis (i.e., analysis focusing primarily on the model and analysis focusing more on policy issues and uses of the model). A two-way classification scheme for model analyses is presented, and examples of analysis by model developers, model users, third-party model analysts, and joint efforts, are given. This is followed by an examination of the nature of independent assessment, and a description of an experiment in model assessment, i.e., the MIT assessment of the Baughman-Joskow Regional Electricity Model.

A80-11832 Review of scenarios of future U.S. energy use. J. Just (Donovan, Hamester and Rattien, Inc., Washington, D.C.) and L. Lave (Carnegie-Mellon University, Pittsburgh, Pa.). In: Annual review of energy. Volume 4. Palo Alto, Calif., Annual Reviews, Inc., 1979, p. 501-536, 41 refs.

The following energy scenarios are reviewed: (1) CINAES Integration Scenario (1976-1977); (2) Modeling Resource Group (1976-1977); (3) the Energy Policy Project (1974); (4) Workshop on Alternative Energy Strategies (1977); (5) Nuclear Energy Policy Study Group; (6) Project Independence; (7) Energy Information Adminstration's Annual Report (1977); (8) National Energy Plan (1977); (9) ERDA National Energy R&D Plan (1975); (10) Market Oriented Program Planning Study (1977); and (11) Inexhaustible Energy Resources Planning Study (1977). Emphasis in this assessment is placed on the limitations of the scenario method, whether assisted by formal or purely judgmental models. It is concluded that the strength of the scenario method will continue to depend more upon the richness of the set of alternative futures considered than upon the quality of any single projection.

A80-11837 Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978. Symposium sponsored by the Joint Services Electrical Power Sources Committee. Edited by J. Thompson (Royal Aircraft Establishment, Farnborough, Hants., England). London, Academic Press, Inc. (London), Ltd., 1979. 786 p. \$134.

A collection of papers is presented regarding recent advances in the research and development of nonmechanical electrical power sources. Attention is given to many types of primary, secondary, high-temperature and reserve batteries, along with fuel cells and other types of nonmechanical power sources. Topics of interest include some promising aspects regarding solar energy conversion with metal oxide photovoltaic cells, recent advances in zinc-bromine batteries, hydrogen (hydride) air secondary battery, a new metal/plastic compound electrode for traction batteries, and lead-lead dioxide perchloric acid reserve cells.

A80-11838

Cadmium electrodes with improved surface characteristics for alkaline storage batteries. S. Sathyanarayana (Indian Institute of Science, Bangalore; Tamil Nadu Alkaline Batteries, Ltd., Madras, India). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 141-149; Discussion, p. 149-151. 5 refs.

It is shown that minute crystallites of active material which usually cover the exterior surface of sintered plate cadmium electrodes may be rendered electrochemically inactive by electrodepositing a thin layer of pure nickel on them. The charge-discharge reactions of the cadmium electrode occurring inside the porous matrix are not affected by this process. The stability of the cadmium electrode with regard to cycle life and possibly ageing, is enhanced due to a decreased density of nucleation sites for the formation and growth of cadmium dendrites on the exterior surface of the electrode. There is no hydrogen evolution during overcharge of sealed nickel-cadmium cells with such flash-nickel plated negative electrodes under normal conditions so long as the capacity of the cell is limited by that of the positive electrode. The oxygen recombination rate following overcharge is, surprisingly, enhanced by the above process of flash nickel-plating to a significant extent. (Author)

A80-11839 Non-sintered plastic-bonded nickel oxide electrodes with open structure and their electrochemical performance. J. Mrha, I. Krejci, B. Klapste (Ceskoslovenska Akademie Ved, Ustav Fyzikalni Chemie a Elektrochemie, Prague, Czechoslovakia), B. Braunstein (Statni Vyzkumny Ustav Materialy, Prague, Czechoslovakia), V. Koudelka, and J. Malik (Prazska Akumulatorka, Mlada Boleslav, Czechoslovakia). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings

of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978. London, Academic Press, Inc. (London), Ltd., 1979, p. 153-170. 12 refs.

Conductive plastic enables an elastic and simultaneously electronic conductive connection between the particles of the active material used in pocket-type nickel oxide electrodes to be made. The mixture of these materials can be rolled after the addition of a liquid milling agent onto a metallic grid at room temperature. An electrode thus formed, pressed to 120 MPa gives more than 1000 cycles during accelerated life testing. At discharge rates greater than 1C (C = capacity) the electrochemical performance is controlled by the quality of the joining area of the active mass-collector and correlation of this performance with the results of impedance measurements is found. (Author)

A80-11840 Failure mechanisms of vented nickel-cadmium cells in overcharge. K. L. Dick, T. Dickinson (Newcastle-upon-Tyne, University, Newcastle-upon-Tyne, England), R. J. Doran, S. E. A. Pomroy, and J. Thompson (Royal Aircraft Establishment, Materials Dept., Farnborough, Hants., England). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978. London, Academic Press, Inc. (London), Ltd., 1979, p. 195-216; Discussion, p. 217, 218. 7 refs.

The observed overcharge characteristic of defective vented nickel-cadmium cells has been investigated in terms of three possible failure mechanisms, namely, oxygen recombination, the operation of redox systems and the formation of 'soft' shorts. Experiments have included electrochemical studies at stationary and rotating disc cadmium electrodes, voltammetry in cell electrolyte, characteristics of defective and specially constructed vented cells and the examination of cell components by scanning electron microscopy. Results indicate that all three mechanisms can carry current in overcharge to varying extents but that the formation of soft shorts appears to be critical in producing the defective behavior frequently observed.

(Author)

A80-11841 Improvement of the high-rate discharge behaviour of the nickel electrode. G. Crespy, R. Schmitt (Battelle, Centre de Recherche de Genève, Geneva, Switzerland), M. A. Gutjahr, and H. Säufferer (Daimler-Benz AG, Stuttgart, West Germany). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 219-236; Discussion, p. 237. 14 refs. Research sponsored by the Daimler-Benz AG.

The energy density and the high-rate discharge behavior of alkaline batteries (Cd/Ni, Fe/Ni, Zn/Ni, TiNi/Ni) can be increased by structural improvements of the positive nickel electrode. A highly porous nickel-foam structure has been developed, applying a one-step sintering technique. Porosities of 85 percent and more can be achieved without diminution of the mechanical strength. The use of this structure as support in nickel electrodes allows an increase of the specific capacity and an improvement of the high-rate discharge behavior at different temperatures. The overall electrochemical characteristics of these electrodes are superior to that of conventional sintered electrodes which make them particularly well adapted for alkaline traction batteries. (Author)

A80-11842 High-efficiency alkaline accumulator with cadmium mass treated with oxalic acid. J. Sandera, M. Cenek, A. Touskova, M. Calabek (Brno, Vysoke Uceni Technicke, Brno, Czechoslovakia), J. Mrha, and J. Jindra (Ceskoslovenska Akademie Ved, Ustav Fyzikaini Chemie a Elektrochemie, Prague, Czechoslovakia). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978. London, Academic Press, Inc. (London), Ltd., 1979, p. 239-247. 5 refs.

With the use of oxalic acid as modifying additive to active cadmium mass for alkaline accumulators it is possible to increase its efficiency of utilization by 10-20% due to the increase in porosity and specific active surface and to improve the accumulator output and low-temperature parameters. The results of the positive effect of oxalic acid have been demonstrated by evaluating the electrical parameters of nickel-cadmium accumulators during cycling. (Author)

A80-11843 Development of silver-hydrogen cells. G. L. Holleck, M. J. Turchan, F. S. Shuker, D. J. DeBiccari, and P. O. Offenhartz (EIC Corp., Newton, Mass.). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 271-283; Discussion, p. 283, 284. Contract No. F33615-76-C-2093.

With a projected energy density of close to 80 Wh/kg and a cycle life of about 1000 cycles, silver-hydrogen cells represent a promising power source for specialized applications. Electrolyte management is the main problem area. Unfavorable electrolyte transport properties make common argentistatic membranes such as Visking and grafted polyethylene films not suitable for Ag/H2 cells. Attractive Ag/H2 cells can be constructed with an inorganic-organic separator developed by NASA. (Author)

A80-11844 Development of silver-hydrogen cells. P. Antoine and P. Fougere (Société des Accumulateurs Fixes et de Traction, Romainville, Seine-Saint-Denis, France). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 285-299; Discussion, p. 299, 300. Research supported by the European Space Agency and Direction des Recherches, Etudes et Techniques.

Metal-hydrogen systems have been intensively studied for several years because of their high energy density. A Ag-H2 couple, recently developed, offers an energy density of about 80-100 Wh/kg which is 70 percent higher than the energy density of the Ni-H2 couple. The physicochemical phenomena which can lead to the life-time limitation of the Ag-H2 system are under investigation. Different methods for improving the cycle life to Ag-H2 cells and first results already obtained are presented. Interesting characteristics of Ag-H2 cells have been obtained particularly during overcharge and charge retention tests. To date, several Ag-H2 cells have undergone 24-h cycle tests at 22 C and 50 percent depth of discharge. 300 cycles have already been achieved. Other cells on a 100-minute cycle test at 22 C and 27 percent depth of discharge have already reached 3000 cycles.

(Author)

A80-11845

Zinc-bromine battery studies. R. J. Bellows, D. J. Eustace, P. Grimes, J. A. Shropshire, H. C. Tsien, and A. F. Venero (Exxon Advanced Energy Systems Laboratory, Linden, N.J.). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd.,

1979, p. 301-311; Discussion, p. 311, 312, 14 refs.

Studies on a circulating-electrolyte zinc-bromine battery are

described. Used in conjunction with low-cost conductive plastic electrodes and separable bromine complexes, the system provides efficient operation at energy-density levels attractive for traction as well as energy storage use. Performance of the system is described, including evaluation of the cycling behavior of monopolar and bipolar modules. Projections of energy densities and possible cost ranges are made.

(Author)

A80-11846 Recent advances in zinc-bromine batteries. F. G. Will (General Electric Co., Schenectady, N.Y.). In: Power sources 7: Research and development in non-mechanical electrical power

sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 313-326; Discussion, p. 326-328. 11 refs. Contract No. EY-76-C-02-2950.

The design and performance of zinc-bromine cells which employ all-carbon electrodes, a stable cation exchange membrane and electrolyte circulation is described. The design permits internal electrolyte manifolding and stacking of cells in electrical series, using bipolar electrodes. Individual cells of this type have been charged and discharged with 3-1 A or 25 mA/sq cm for four and eight hours each, corresponding to an energy delivered of up to 36 Wh. Constant performance has been demonstrated for an 18 Wh cell in 170 cycles for a total of 1200 h while attaining a coulombic efficiency of 96%, volt-efficiency of 76% and electrochemical energy efficiency of 73%. (Author)

A80-11847 Optimization of iron-air and nickel oxide-iron traction batteries. B. Andersson and L. Ojefors (Swedish National Development Co., Dept. for Energy and Environmental Technology, Akersberga, Sweden). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 329-342; Discussion, p. 342, 343. 5 refs.

An analysis is carried out to determine how different factors contribute to the decrease in energy density from the theoretical values of 760 and 265 Wh per kg to the real values. For the iron-air battery, a full scale 30 kW h system with 80 kWh per kg is considered and for the nickel-oxide concept a 300 Ah cell with 55.5 Wh per kg. It is reported that the analysis shows the possibility of increasing the energy densities to 105 Wh per kg (advanced) for the nickel oxide iron system. It is concluded that the tests carried out with these two alkaline battery systems and the calculations made, show that they will be competitive power sources for traction applications in the near future.

A80-11848 Hydrogen /Hydride/-air secondary battery. J. Sarradin, G. Bronoel (CNRS, Grenoble, France), A. Percheron-Guegan, and J. C. Achard (CNRS, Meudon, Hauts-de-Seine, France). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 345-350; Discussion, p. 350, 351. 11 refs. Research supported by the Direction des Recherches, Etudes et Techniques.

The use of metal hydrides as negative electrodes in a hydrogenair secondary battery seems promising. However, in an unpressurized cell, more stable hydrides that LaNi5H6 must be selected. Partial substitutions of nickel by aluminium or manganese increase the stability of hydrides. Combined with an air reversible electrode, a specific energy close to 100 Wh/kg can be expected. (Author)

A80-11849

Neutral electrolyte aluminium-air battery. D.

M. Drazic, A. R. Despic, S. Zecevic, M. Atanackovic (Beograd,
Univerzitet; ICTM, Institute of Electrochemistry, Belgrade, Yugoslavia), and I. Iliev (B'Igarska Akademiia na Naukite, Tsentralna
Laboratoriia po Elektrokhimichni Iztochnitsi na Tok, Sofia, Bulgaria). In: Power sources 7: Research and development in nonmechanical electrical power sources; Proceedings of the Eleventh
International Symposium, Brighton, Sussex, England, September
25-28, 1978.

London, Academic Press, Inc.
(London), Ltd., 1979, p. 353-362; Discussion, p. 362, 363. 5 refs.

A neutral electrolyte, aluminum-air battery, using an active aluminum-alloy anode and an active carbon-based air electrode is described. Attention is given to the development of the battery noting that problems with electrolyte gelling which resulted in reduced operation of the battery were overcome by adding NaF to the electrolyte and by seeding with aluminum oxide powder. It is calculated that energy from the Al-air system should be three times cheaper than that of the Zn-air and 2.8 times cheaper than that of

the Mg-air system. Finally, it is claimed that it is ecologically superior to any battery system known to date, in that it is harmless, nonpolluting and acceptable to almost any environment. M.E.P.

A80-11850 The conversion of ethylene glycol with air in alkaline fuel cells. H. Cnobloch, D. Gröppel, H. Kohlmüller, D. Kühl, and G. Siemsen (Siemens AG, Forschungslaboratorien, Erlangen, West Germany). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978. London, Academic Press, Inc. (London), Ltd., 1979, p. 389-403; Discussion, p. 403, 404. 13 refs.

Because of their easy storage and high charge density, liquid fuels are studied for use in fuel cells. The relatively cheap and industrially produced ethylene glycol can theoretically yield 428 Ah per liter during conversion to the stage of glycolic acid. A noble metal catalyst stabilized with bismuth and consisting of 43%Pt, 34%Pd, and 23%Bi has proved particularly useful for the oxidation of glycol. The reduction of air-oxygen takes place at hydrophobic carbon electrodes which contain silver as the catalyst. A 12-cell 50 W battery with a capacity of 77 Ah has performed well in a continuous service test. (Author)

A80-11851 The performance of molten-carbonate fuel cells. K. F. Blurton, L. G. Marianowski, and E. H. Camara (Institute of Gas Technology, Chicago, III.). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978. London, Academic Press, Inc. (London), Ltd., 1979, p. 405-417; Discussion, p. 417, 418. ERDA Contract No. 31-109-38-3552.

Molten-carbonate fuel cells are potential high-efficiency power sources for the 1980s. At that time, we will be required to operate on a variety of fuels, thus this study was undertaken to determine the effect of fuel cell feedstock and other major operating parameters. Results are shown for the operation of the fuel cell on gases simulating those processed by common techniques from methane, naphtha, heavy fuel oils, and coal. The relationship between fuel quality and the fuel cell performance, and the effect of oxidant composition, fuel and oxidant utilization, and cell temperature are also described. (Author)

A80-11852 . Utility fuel cells for Sweden. O. Lindstrom, T. Nilsson, M. Bursell, C. Hornell, G. Karlsson, C. Sylwan, and B. Ahgren (Kungl. Tekniska Hogskolan, Stockholm, Sweden). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 419-434; Discussion, p. 435, 436. 18 refs. Research supported by the National Swedish Board for Energy Source Development, Styrelsen for Teknisk Utveckling, and Carl Trygger's Foundation for Scientific Research.

A modest program for useful fuel cell systems is under way in Sweden. The concept is composed of a fuel processor (for conversion of biomass and peat to hydrogen) and alkaline fuel cells. The fuel processor uses a modified steam-iron process with a high conversion efficiency. Most of the experimental work is concerned with the development of electrode materials; cathodes consisting of nickel screens embedded in PTFE bonded silver catalysts give 1kA/sq m in the range -0.11 to -0.21 V vs. Hg/HgO; anodes with skeleton-nickel from AlNiTiMo alloys on nickel matrixes have given 1 kA/sq m at -0.87 V vs. Hg/HgO at best. Various cell and module designs are being evaluated for use in a theoretical 100 MW plant. One idea, using so-called FC-041 2.5 MW generator units, seems to be quite competitive in cost. (Author)

A80-11853 Some promising aspects regarding solar energy conversion with metal oxide photovoltaic cells. F. T. Tanasescu, C. I. Popescu, and D. Moraru (Institutul de Cercetari si Proiectari pentru Industria Electrotehnica, Bucharest, Rumania). In: Power sources 7: Research and development in non-mechanical electrical power

sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 437-444, 10 refs.

The paper presents a photoconverter with an Al/Cu2O/Cu structure, where the photovoltaic junction is Al/Cu2O; the Cu2O/Cu junction produces an electric field contributing to an increase in both the collection efficiency of the generated carriers and consequently in the conversion efficiency. The improvement of this type of converter for which the specialized literature mentions an efficiency approximately equal to 1%, may be a good solution for a large scale energy conversion in the future due to its real possibilities of development. (Author)

A80-11854 Studies on the Ca-CaCrO4 and Li-Al-FeS2 systems for thermal battery applications. P. V. Dand, K. K. Press, and G. R. Wisniewski (KDISCORE, Inc., Cockeysville, Md.). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978. London, Academic Press, Inc. (London), Ltd., 1979, p. 501-517; Discussion, p. 517, 518. 7 refs. USAF-supported research.

The need for a long life thermal battery has spurred efforts at evaluating new electrochemical couples for potential replacement of the Ca-CaCrO4 system. This paper compares the performance characteristics of the Ca-CaCrO4 and the Li-Al-FeS2 systems. Studies were conducted on single cells and batteries in order to evaluate various parameters including operating temperature, pressure, cell composition, thickness, and density. These studies indicate that although the Ca-CaCrO4 system is competitive at low current densities, the Li-Al-FeS2 system promises to substantially extend the present domain of high current density thermal batteries. (Author)

A80-11855 Heat generation in Li/SOCI2 cells. P. Bro (P. R. Mallory Laboratory for Physical Science, Burlington, Mass.). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 571-579; Discussion, p. 579-582. 10 refs.

Short duration, constant current discharges of fresh Li/SOCI2 cells were carried out at 25 and 45 C in a calorimeter with the concurrent monitoring of the cell overvoltage and the heat evolution from the cells. At discharge currents between 20 and 200 mA the cells generated about three times as much heat at 25 C and twice as much heat at 45 C as could be calculated from the cell current and the cell overvoltage at the two temperatures. The heat evolution persisted for a considerable length of time beyond the cessation of the discharge. The results provide evidence for the occurrence of significant chemical reactions in Li/SOCI2 cells. (Author)

A80-11856 Projected mechanism for thionyl chloride and sulphuryl chloride cathode reactions. G. E. Blomgren, V. Z. Leger, T. Kalnoki-Kis (Union Carbide Corp., Battery Products Div., Parma, Ohio), M. L. Kronenberg (General Electric Co., Gainesville, Fla.), and R. J. Brodd (ESB Technology Co., Yardley, Pa.). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 583-592; Discussion, p. 592, 593. 7 refs.

A80-11857 Behaviour of the secondary lithium electrode on alloying substrates in propylene carbonate based electrolytes. J. R. van Beek and P. J. Rommers (Philips' Gloeilampenfabrieken, Philips Research Laboratories, Eindhoven, Netherlands). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 595-621; Discussion, p. 621, 622. 19 refs.

Electrodeposition and dissolution of lithium metal in propylene carbonate based electrolytes have been studied with special emphasis on the morphology and passivating behavior. Both are influenced by using substrate electrodes, which can alloy electrochemically with lithium at ambient temperature. This may result in a considerable improvement of cycle-life and charge retention. Complications arise, however, when long waiting times between plating and stripping are introduced. The stripping efficiency decreases due to formation of compounds from which lithium cannot be stripped. Such a decrease was not observed when aluminum was used as substrate. Lithium deposits on aluminum, however, gave rise to a considerable disintegration of the electrode on cycling.

A80-11858
Utilization of transition metal phosphorus trisulphides as battery cathodes. A. Le Mehaute and P. Perche (Compagnie Générale d'Electricité Marcoussis, Essonne, France). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd.,

1979, p. 623-635; Discussion, p. 635, 636. 16 refs. Research supported by the Délégation Générale à la Recherche Scientifique et Technique and Direction des Recherches et Moyens d'Essais.

A new positive material, NiPS3 for an electrochemical cell with a lithium negative electrode has been studied. Characterized by a stacking of two-dimensional slabs, an electrochemical improvement results from the solid solution formation (LixNiPS3). This study shows the advantage in energy and primary power sources for NiPS3 compared with TiS2. Electrochemical limitations are analyzed and measurements of diffusion coefficients in the solid phase are given. (Author)

A80-11859 Lead oxides-lithium cells. M. Broussely, Y. Jumel, and J. P. Gabano (Société des Accumulateurs Fixes et de Traction, Département Piles, Poitiers, France). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 637-645; Discussion, p. 645, 646. 8 refs.

The possibility of using lead and lead-bismuth mixed oxides as positive active materials in organic electrolyte lithium cells with a working voltage similar to those of silver zinc cells has been considered. Button cells of SR 44 size have been developed as a test vehicle and studied under various conditions of discharge rate and storage. This paper describes the performance characteristics obtained under these conditions and suggests in conclusion the possible replacement of silver zinc cells by such systems for a large range of low-rate applications on the basis of cost effectiveness. (Author)

A80-11861 Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites. L. B. Welsh, R. W. Leyerle (UOP Corporate Research Center, Des Plaines, III.), B. S. Baker, and M. A. George (Energy Research Corp., Danbury, Conn.). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 659-674; Discussion, p. 675, 676. ERDA-supported research; Grant No. DAAG53-76-C-0014.

The properties and performance of a new class of electrocatalysts being developed for phosphoric acid electrolyte fuel cell applications are reported. These electrocatalysts are produced by platinum impregnation of high surface area pyropolymer structures which are prepared by leaching the alumina from small-particle pyropolymer-alumina composites acid. When tested as 0.4-0.6 mg/sq cm Pt-loaded cathodes in model phosphoric fuel cells at 180 C, full cell performance levels above 0.60 V at 200 mA/sq cm have been obtained using Pt-black counter electrodes. Both the particle size and pore volume distribution of the electrocatalysts may be controlled by the appropriate choice of starting materials and process condi-

tions. Such control constitutes a substantial improvement in the ability to optimize electrocatalyst structures. (Author)

A80-11862 The electrochemical characteristics of iron sulphide in immobilized salt electrolytes. D. Birt, C. Feltham, G. Hazzard, and L. Pearce (Admiralty Marine Technology Establishment, Poole, Dorset, England). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 691-699; Discussion, p. 699, 700.

While the lithium alloy-iron sulfide couple has attracted considerable attention in recent years for high-temperature secondary battery applications, the high efficiency and good thermal stability of iron sulphide makes it an attractive candidate for high rate, extended duration, primary thermal batteries. The feasibility of using a pile design of battery for iron sulphide coupled with immobilized lithium has been studied with test cells of 8.3 sq cm plate area. Using 10 A min/sq cm cathodes, high rates (up to 1 A/sq cm) and utilization of up to 80% have been achieved over the temperature range 400-700 C. Similar experiments with secondary cells have produced over 100 cycles at the 10 h (25 mA/sq cm) rate, with utilization between 80 and 90%. Cells are capable of sustained discharge at 100 mA/sq cm.

A80-11863

Recent advances in high temperature primary lithium batteries. M. D. Baird, A. J. Clark (Mine Safety Appliances Co., Ltd., Glasgow, Scotland), C. R. Feltham, and L. J. Pearce (Admiralty Marine Technology Establishment, Poole, Dorset, England). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 701-711; Discussion, p. 712. 8 refs.

The poor efficiency of calcium anodes in existing molten salt primary batteries has been a major constraint in extending their duration beyond a few minutes at high electrode current densities. The development of satisfactory techniques for immobilizing lithium coupled with suitable cathodes, has to a great extent overcome this problem. Studies on a lithium anode system using immobilized salt electrolytes have shown that it is capable of working over a wide range of power densities at high electrode efficiencies. Resulting from this, a new range of pyrotechnically activated batteries has been developed. The basic chemical characteristics of the cell system are discussed and battery data for a number of cell sizes on power and energy are presented, demonstrating the potential of the system with respect to a range of applications. (Author)

A80-11865 Computer modelling of electrically parallel arrays of sodium-sulphur cells. S. P. Mitoff (General Electric Co., Schenectady, N.Y.). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978. London, Academic Press, Inc. (London), Ltd., 1979, p. 733-741; Discussion, p. 741, 742. Research supported by the Electric Power Research Institute.

The individual charge and discharge curves of 20 experimental 16 A h sodium-sulphur cells were used as input data for a computer programme. The programme was used to synthesize the behavior of a parallel array of cells with their charge and discharge characteristics. The results predicted that they would deliver about the same power and capacity in the parallel connection as they do when tested individually at constant current. Although the cells get out of phase in ampere hours at the earlier stages of a cycle, they tend to equalize near the end of the cycle. (Author)

A80-11866 Some aspects of sodium-sulphur batteries. M. D. Hames, D. G. Hartley, and N. M. Hudson (British Railways Board, Railway Technical Centre, Derby, England). In: Power sources 7: Research and development in non-mechanical electrical power

sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978. (A80-11837 02-44) London, Academic Press, Inc. (London), Ltd., 1979, p. 743-755; Discussion, p. 755, 756. Research supported by the Department of Transport.

Several 3 kW h, 50 V sodium-sulphur batteries have been constructed and tested under constant current and simulated duty cycle rates. These batteries contain 48 central sulphur cells (37 A h) connected as two parallel chains of 24 series cells. Experimental data are presented which illustrates the charge-discharge characteristics, thermal properties and safety aspects of these batteries. (Author)

A80-11867 Current collectors for sodium-sulphur batteries. T. L. Markin, A. R. Junkison, R. J. Bones, and D. A. Teagle (Atomic Energy Research Establishment, Harwell, Oxon, England). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 757-767.

In a previous paper (Bones, Brook and Markin, 1975), it was shown that stainless steel corroded at an unacceptable rate when used as a current collector in the sulphur/polysulphide melt in Na-S cells. A search has since been made for alternative current collectors that will allow Na-S cells to achieve at least 1000 cycles without a significant loss in capacity and have an initial resistance less than 2 ohm sq cm. Moreover, any resistance increase should be small. Fully engineered cells with capacities of 20 A h have been constructed, with the sulphur contained in the beta-alumina electrolyte tube and the sodium in an outer annulus. These were used to evaluate carbon and molybdenum current collectors. Variable results were obtained with molybdenum rod current collectors for reasons associated with the surface chemistry of this metal in polysulphide melts. Anodized molybdenum current collectors were an improvement. Capacities of 72% (based on the weight of S) were maintained after 300 cycles, accompanied by a small increase in resistance.

A80-11868

An indirect ammonia-air fuel system. C.-S. Cha, Z.-D. Wang, Y.-C. Chu, and C.-T. Lo (Wuhan University, Wuchang, Communist China). In: Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978.

London, Academic Press, Inc. (London), Ltd., 1979, p. 769-773; Discussion, p. 773, 774.

A rather simple ammonia-air fuel cell system has been developed in Wuhan University. Ammonia is cracked to give a 25% N2, 75% H2 gas mixture, which is consumed directly in the fuel cell stack. Scrubbed air is supplied to the air electrodes by the 'chimney effect'. No platinum-group metal catalysts are used to fabricate the electrodes and the system contains neither pump nor fan. The system is therefore not expensive and appears to be quite reliable during prolonged unattended operation. The average service life of a fuel cell module is about three months of continuous operation at 50 mA/sq cm. (Author)

A80-11953 Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Edited by R. F. Hill. Washington, D.C., Government Institutes, Inc., 1979. 1167 p. \$38.

Papers presented examine both the technical and institutional aspects of energy technology for an improved energy system in the United States. The proceedings include discussions of: energy policy; institutional opportunities and constraints; the efficient use of energy; technology for fossil, nuclear, and geothermal resources; and technology for renewable energy resources.

B.J.

A80-11954 Kentucky's coal-based chemical/energy park. D. D. Drake (Kentucky, Dept. of Energy, Ky.) and H. L. Falkenberry (Tennessee Valley Authority, Knoxville, Tenn.). In: Energy tech-

nology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979.
Washington, D.C., Government Institutes, Inc., 1979,

p. 56-69.

The Kentucky Department of Energy, assisted by the TVA, is proceeding with plans to develop a coal-based chemical/energy park in western Kentucky. This park will be designed to take high-sulfur coal from western Kentucky and convert it to clear synthetic fuels and feedstocks, which will in turn be used for power generation and as raw materials for a slate of chemical products. The entire operation will be economically viable and environmentally sound. It is concluded that this commercialization effort represents an outstanding opportunity to demonstrate a reproducible, innovative way to meet national energy supply needs with a minimum requirement of federal funding.

B.J.

A80-11955 Hydrogen - A means of integrating competing technology into a unified energy system. R. T. Jaske. In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979.

Washington, D.C., Government Institutes, Inc., 1979, p. 207-214. 12 refs.

The 1975 state of hydrogen energy technology is reviewed, and some criteria for a long range national energy delivery system are outlined. It is found that only a limited number of systems can meet all of the key properties of a nationally optimized, highly independent energy system. The most promising combination appears to be the utilization of breeder reactors or fusion machines to supply thermal energy for generation of electricity and for production of hydrogenous fuel (methane-methanol-hydrogen) for a common pool delivery system. Competitive forces would allocate the shares of electricity and stored fuel on the basis of efficiency and market conditions, guided by national objectives.

A80-11956 Economic performance - Evaluations for solar energy. F. Roach and S. Noll (California, University, Los Alamos, N. Mex.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 273-284. 16 refs. Research supported by the U.S. Department of Energy.

The LASL/UNM computer code for the economic evaluation of the feasibility of residential solar space and water heating systems is described. The inputs, sets of evaluative procedures, and outputs associated with the code are discussed in detail. Present status and on-going modifications to the various components are highlighted, and the utility of the LASL/UNM code is demonstrated through illustrative examples of recently completed studies.

B.J.

A80-11957 Techniques for evaluation of advanced cogeneration technologies. D. H. Brown (General Electric Co., Schenectady, N.Y.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 354-360.

A methodology is presented that characterizes the performance parameters of advanced energy conversion systems for cogeneration. Process temperature is directly coupled to the characteristic of the energy conversion system in a manner that is straightforward, simple, easy-to-check, and requires a minimum of computation. Parameters are expressed as ratios to the cogeneration fuel energy; the more familiar expression of fuel charged to power is shown to be a derivative of these expressions.

A80-11958

Gas recovery from unconventional sources. A.
A. Pitrolo, L. A. Schrider, W. K. Overbey, and R. L. Wise (U.S. Department of Energy, Morgantown Energy Technology Center, Morgantown, W. Va.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979.

Washington, D.C., Government Institutes, Inc., 1979, p. 483-494. 11 refs.

Department of Energy R&D activities in the field of unconventional sources of natural gas are reviewed. Emphasis is on four such sources: tight sandstones, Devonian shales, coalbed methane, and geopressured aquifers.

B.J.

A80-11959 Combustion of anthracite culm in a fluidized bed boiler. S. Moskowitz (Curtiss-Wright Corp., Wood-Ridge, N.J.), A. M. Leon (Dorr-Oliver, Inc., Stamford, Conn.), and D. A. Rosini (Shamokin Filler Co., Inc., Shamokin, Pa.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979.

Washington, D.C., Government Institutes, Inc., 1979, p. 530-538.

The Department of Energy, is sponsoring several projects to use anthracite culm, a coal waste material, as a low cost fuel to generate steam in a fluidized bed combustion (FBC) boiler system. These projects involve steam generation units ranging from 20,000 pph for manufacturing processes to 100,000 pph for district heating. One of the projects which is discussed in this paper is directed at design, construction, operation and evaluation of a prototype atmospheric FBC boiler unit, on culm with a heating value as low as 3000 Btu/lb and with an ash content of over 70%. The culm is to be burned in an environmentally acceptable manner to produce 20,000 pph steam for industrial use, although the design is representative of steam generating capacity of 100,000 pph or greater. Details of this program including plant arrangement, FBC design considerations and preliminary combustion data obtained in an FBC technology rig are presented. (Author)

A80-11960 The prospect for anthracite as a national energy resource. J. Pell (U.S. Department of Energy, Div. of Anthracite, Washington, D.C.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 539-552. 22 refs.

The paper presents some basic facts on the utilization of anthracite and describes the development of the DOE Division of Anthracite (DA). The primary objective of the DA is to seek ways to restore anthracite as a viable economic alternative to soft coals and to imported oil and gas now supplying the Northeast. Consideration is given to environmental requirements for new anthracite-fired facilities.

A80-11961 Economics of Pullman Kellogg's magnesium promoted FGD system. L. Granger, L. J. Scotti, and J. C. Yarze (Pullman Kellogg, Co., Houston, Tex.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979.

Washington, D.C., Government Institutes, Inc., 1979; p. 602-616. 6 refs.

A magnesium sulfate-promoted limestone flue gas desulfurization system has been designed for treating flue gas resulting from the combustion of a coal containing 5.75% sulfur. This paper reviews the chemistry of magnesium sulfate-promoted calcium-based and nonpromoted calcium-based flue gas scrubbing, and discusses the advantages of the promoted system for high sulfur content coals. Economic evaluations are presented which include comparisons of reagent and power costs for promoted and nonpromoted limestone systems. Process design and economic analyses of forced oxidation as means of reducing waste slurry disposal costs are discussed. In addition, different slurry dewatering options are reviewed.

A80-11962

170 MW pressurized fluidized bed combustion electric plant J. J. Markowsky (American Electric Power Service Corp., New York, N.Y.) and B. Wickstrom (STAL-Laval Turbin AB, Sweden). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979.

Washington, D.C., Government Institutes, Inc., 1979, p. 617-629.

A pressurized fluidized bed combustion (PFBC) combustor, when operated in conjunction with a combined-cycle electric power generation, offers the potential for direct combustion of high-sulfur coal without stack gas clean-up, as well as increasing power plant

efficiency and significantly reducing nitrogen oxide emissions. This paper presents the status of a privately funded development program initiated in December of 1976 to determine the technical and economic feasibility of utilizing PFBC for electric power generation. It is concluded that in order to develop PFBC to the point of commercialization, a large-scale Engineering Development System Plant will have to be built and operated. Toward this end, it is proposed to design and build a 170-MW PFBC combined cycle plant which would incorporate the same gas turbine and PFBC combustor that would be used in a commercial size plant. (Author)

A80-11963 Development of fluidised bed combustion in the United Kingdom. W. G. Kaye (National Coal Board, London, England). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 630-638.

The early development of fluidized bed combustion in the United Kingdom is reviewed with reference to: (1) deep-bed technology burning crushed coal with sulfur retention for power generation, and (2) the combustion of larger sizes of coal in shallower beds to satisfy the needs of the industrial market. The current status of these processes is examined, with attention given to pressurized fluidized combustion, atmospheric fluidized combustion, and smaller industrial boilers and furnaces.

B.J.

A80-11964 Coal liquefaction - An international perspective. A. Baker and M. D. Teper (International Energy Agency, London, England). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 639-656. 18 refs.

The Coal Research Program of the International Energy Agency is briefly described. This is followed by a discussion of liquefaction processes and their development, some preliminary considerations on liquefaction economics, and some considerations on the future of coal liquefaction.

A80-11965 Current German developments in coal liquefaction technology. G. Kölling, I. Romey, and E. Wolowski. In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 657-663, 6 refs.

The paper examines the IG (or Bergius-Pier) coal liquefaction process, based on slurry phase hydrogenation. Emphasis is placed on current German pilot plants for coal liquefaction, including the Bergbau-Forschung plant, the 200 t/d demonstration plant of Ruhrkohle AG/Veba Oel AG, and the 6 t/d pilot plant of Saarbergwerke AG. Sizes of these plants were chosen so as to enable scaling up to a commercial prototype plant. The possibility of using hydrogenation products as feedstock for the chemical industry is also being investigated.

A80-11966 Recent developments in coal liquefaction in the United States. L. E. McNeese, R. Salmon, and H. D. Cochran, Jr. (Oak Ridge National Laboratory, Oak Ridge, Tenn.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979.

Washington, D.C., Government Institutes, Inc., 1979, p. 664-686. 28 refs. Contract No. W-7405-eng-26.

The current status of coal liquefaction in the United States is reviewed, with reference to basic chemistry, process research and development, and economics and commercialization. The following processes are described: direct liquefaction, two-stage liquefaction, pyrolysis processes, and indirect liquefaction. Process problems in coal liquefaction are briefly discussed, and some recent economic studies are reviewed.

B.J.

A80-11967 SRC solids - Boiler fuel and building block. A. P. Flask (Wheelabrator-Frye, Inc., Keene, N.H.) and J. A. Pryor. In: Energy technology VI: Achievements in perspective; Proceedings of

the Sixth Conference, Washington, D.C., February 26-28, 1979.
Washington, D.C., Government Institutes, Inc.,
1979, p. 687-706. 5 refs.

The current status of the solvent refined coal (SRC) process is reviewed. Pilot projects are assessed and the status of SRC technology is surveyed, with reference to: (1) solids separation, (2) hydrogen generation, (3) primary reactor scale-up, and (4) equipment life, maintenance, and operating difficulties. Both the solids and liquids SRC processes are described, and it is noted that market studies indicate that SRC solids have a unique potential for further processing to produce products for basic industries (liquid fuels, anode coke, and metallurgical coke are examples).

B.J.

A80-11968 SRC solids - A preferred compliance boiler fuel. S. R. Hart, Jr. In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 707-717, 7 refs.

Solid solvent refined coal (SRC-I) is a coal-derived fuel with a high heat content and a low ash and sulfur content. The SRC-I technology has been advanced in pilot plant operations over the past five years to the point where it is now considered to be the best candidate for early commercialization of a coal-derived clean fuel. This paper presents a preliminary outlook on the market potential of solid SRC and gives power plant cost data and information on other key factors which must be evaluated by electric utilities in decisions relating to the future use of solid SRC.

B.J.

A80-11969 Low/medium BTU coal gasification - Perspective of the gas industry. R. H. McClelland. In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 728-758.

A80-11970 The near term potential for gasification-combined cycle electric power generation. M. J. Gluckman, N. A. Holt, S. B. Alpert, and D. F. Spencer (Electric Power Research Institute, Palo Alto, Calif.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 771-777.

A80-11971 Coal to electricity - Integrated gasification combined cycle. J. C. Corman (GE Research and Development Center, Schenectady, N.Y.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 778-792. 11 refs.

An advanced energy conversion system, Integrated Gasification Combined Cycle (IGCC), has been identified as a viable approach for converting coal to electricity in an environmentally acceptable manner. This concept comprises three subsystems: a gasifier, a gas cleanup system, and a combustion gas turbine combined cycle. A research and development program is in progress to address the major technical requirements in each area. Experimental components have been constructed for each of the three subsystems. These components are also integrated and operated as a process development unit (PDU) simulation of the proposed commercial IGCC system. The results to date verify the performance characteristics of this conversion concept. The low-Btu coal gasification fuel supply system meets the stringent fuel requirements of utility gas turbines and offers the flexibility to meet tightening environmental constraints.

(Author)

A80-11972 \* Survey of MHD plant applications. J. J. Lynch (U.S. Department of Energy, Washington, D.C.), G. R. Seikel (NASA, Lewis Research Center, Cleveland, Ohio), and J. C. Cutting (Gilbert/Commonwealth, Inc., Reading, Pa.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979.
Washington, D.C., Government Institutes, Inc., 1979, p. 793-807. 24

Open-cycle MHD is one of the major R&D efforts in the Department of Energy's program to meet the national goal of reducing U.S. dependence on oil through increased utilization of coal. MHD offers an effective way to use coal to produce electric power at low cost in a highly efficient and environmentally acceptable manner. Open-cycle MHD plants are categorized, by the MHD combustor oxidizer, its temperature and the method of preheat. The paper discusses MHD baseline plant design, open-cycle MHD plant in the Energy Conversion Alternatives Study (ECAS), early commercial MHD plants, conceptual studies of the engineering test facility, retrofit (addition of an MHD topping cycle to an existing steam plant), and other potential applications and concepts. Emphasis is placed on a survey of both completed and ongoing studies to define both commercial and pilot plant design, cost, and performance.

A80-11973 The reality of on-site fuel cells. R. T. Sperberg and V. B. Fiore. In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 808-810.

On-site phosphoric acid fuel-cell systems are considered. The electrical efficiency of such a cell is shown to be 40% and to be increased to about 80% with waste-heat recovery. Applications of on-site fuel cells with heat recovery coupled with heat pumps are discussed, along with the current objectives of research on phosphoric acid fuel cells.

F.G.M.

A80-11974 Commercial applications of molten carbonate fuel cell systems. K. F. Blurton (Institute of Gas Technology, Chicago, III.) and J. R. Peterson (General Electric Co., Fairfield, Conn.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 811-825.

The paper examines the potential applications of molten carbonate fuel cells. Attention is given to two configurations, a dispersed, oil fueled power plant, and a coal fueled base load power plant. The penetration of these power plants into the utility generation system is described. The status of this technology is reviewed, and the major technology areas currently under investigation are discussed. These include: electrolyte tile, contaminant tolerance, fuel cell endurance, and stack design. Finally, attention is given to gas composition and component production.

M.E.P.

A80-11975 Economics/reliability trade-offs in materials for various coal conversion and utilization processes. M. K. Guha (American Electric Power Service Corp., New York, N.Y.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979.

Washington, D.C., Government Institutes, Inc.,

1979, p. 826-835.

The economics and reliability in materials for coal conversion and utilization processes with emphasis on the conventional coalburning system, pressurized fluidized bed combustion, and open cycle coal-fired magnetohydrodynamics power generation are examined. Corrosion and stress corrosion cracking are the most important problems in conventional systems, which are discussed relative to steam turbines, high pressure feed water heaters, and scrubbers. In direct and indirect coal conversion processes, combined effects of erosion and corrosion by sulfides and chlorides are considered, which affect heat transfer surfaces and in-bed tubes in the fluidized bed equipment. In magnetohydrodynamic (MHD) power generation, the high-temperature air heater, combustor and nozzle, and MHD generator are considered, noting that the combustor must be ceramic-lined to withstand temperatures up to 3200 F for which alumina-chrome materials may be suitable, but the materials selection for the MHD generator requires further investigation.

A80-11976 Status of inertial confinement fusion. C. M. Stickley (U.S. Department of Energy, Washington, D.C.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979.

Washington, D.C., Government Institutes, Inc., 1979, p. 871-877.

Progress in the U.S. Department of Energy's Inertial Confinement Fusion program is reviewed. Program objectives for the scientific feasibility phase, which extends through the mid-1980's. are presented and the capabilities of the major program participants are summarized. Drivers for inertial confinement fusion reactors currently occupying project status include glass lasers, CO2 lasers and electron and light-ion beams, while short-wavelength lasers and heavy-ion beams are undergoing technology development. Target interaction experiments have involved the interaction of lasers with glass microballoon targets or exploding pusher targets, and isentropic compression or ablative compression targets have recently come under investigation. In addition, the transport of focused laser and light-ion beams has been demonstrated and advanced reactor technology for energy applications is being developed. Advantages to the inertial confinement scheme include the limitation of physics questions to the pellet burning phase and the modularity of inertial confinement technology, and it is expected that the scientific feasibility of inertial confinement fusion will be demonstrated in the mid-1980's. A.L.W.

A80-11977 Geothermal resources of the Atlantic Coastal Plain. J. K. Costain (Virginia Polytechnic Institute and State University, Blacksburg, Va.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 878-880.

Optimum sites for the development of geothermal energy in the eastern United States will probably be associated with the flat-lying sediments beneath the Atlantic Coastal Plain. Basement granitic rocks relatively enriched in uranium and thorium and thus sources of geothermal energy are currently being sought beneath thick, porous, thermally insulating coastal sediments by a combination of gravimetric and geological methods. Measurements of a series of 1000-foot holes drilled into the sediments of the Atlantic Coastal Plain between New Jersey and Georgia indicate that the highest thermal gradients (45 C/km) occur in the Delmarva Peninsula, with maximum temperatures of 85 C. A geothermal test well is planned near Crisfield, Maryland to evaluate the productivity of deep aquifers

A80-11978 Geothermal energy markets on the Atlantic coastal plain. W. J. Toth and F. C. Paddison (Johns Hopkins University, Laurel, Md.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 881-895. 10 refs.

A.I.W.

in sediments of the Atlantic Coastal Plain.

A survey of potential energy markets for geothermal resources up to 250 F made for the Atlantic coastal plain in New Jersey, the Delmarva Peninsula, Virginia, and North Carolina is presented. 175 companies have process heat requirements that could be satisfied by potential geothermal resources, and data were also analyzed for space and water heating requirements in the residential, commercial, and military, and agricultural sectors. The geothermal energy system components, such as the production well, the wellhead heat exchanger, and peaking plants, were approximately sized, and wellhead and delivery costs to various types and densities of users were considered. Wellhead costs to large industrial users can be competitive with conventional energy sources, and delivered costs to residential users can be competitive with current fuel oil and natural gas prices, and well below costs of electrical resistance heating. A.T.

A80-11979 Overview of division of energy storage program - Department of energy. G. F. Pezdirtz (U.S. Department of Energy, Div. of Energy Storage Systems, Washington, D.C.). In: Energy technology VI: Achievements in perspective; Proceedings of

the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc.,

The division of Energy Storage Systems of the U.S. Department of Energy was created in order to develop and seek out applications for new and more efficient energy storage techniques. The paper reviews the activities of the division from the point of view of the diversity of central and dispersed energy storage applications. The potential energy savings of the various forms of energy storage under consideration are outlined, and a timetable for the commercialization of energy storage batteries, chemical and thermal systems and physical methods is presented. Particular attention is given to programs investigating compressed air and battery storage for utility load leveling, thermal energy storage for industrial waste heat. aquifer storage of cooled water, the electrolytic production of hydrogen using low-head hydroelectric power, customer-owned thermal energy storage, lead-acid, nickel zinc, nickel iron, sodium sulfur, lithium/metal sulfide and aluminum air batteries and flywheel energy storage for electric vehicles and gasoline/electric hybrid vehicles.

A80-11980 Development of renewable energy sources in the United Kingdom. G. Long (Department of Energy, Energy Technology Support Unit, Harwell, Oxon, England). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979.

Washington, D.C., Government Institutes, Inc., 1979, p. 905-925. 9 refs.

In presenting a survey of UK energy research and development to the Second Energy Technology Conference in 1975, Leighton described the steps then being taken to further the development of renewable energy sources. In the present paper, the research programs which have stemmed from the assessments are reviewed. The approaches to two technologies - solar energy and wave power with very different R&D requirements, are outlined.

Pelletized wood /Woodex/ - Applications and potential, D. C. Walker and W. F. Brimer, In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. ington, D.C., Government Institutes, Inc., 1979, p. 992-997.

The paper surveys Woodex, a pelletized fuel, produced from biomass waste products and materials, and which is claimed to be a clean burning renewable energy source from domestic supply. The pellets are reported to generate a maximum 3% ash, contain no sulfur, and in most areas cost less per therm than traditional fuels. In addition, Woodex contains some 8,500 BTUs per pound at about 35 pounds per cubic foot bulk density, and can be burned in its pelletized form, reduced in size for direct combustion, or processed into a fuel gas. Further, it is claimed that in almost all cases Woodex burns with emissions below those required by the EPA under the clean air act. Finally, it is noted that the fuel can be burned in most systems using coal with little or no modifications required.

Supply, harvesting and nature of forest biomass as a fuel. J. P. Elwood (International Paper Co., Bellusco, Italy). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 1004-1014, 8 refs.

A review of the critical technical and economic barriers to increased use of forest biomass fuel is presented. Three scenarios for forest biomass fuel production and use are outlined: an integrated pulp and paper mill, a regional electric power generating plant and a fuel plantation. These types of operations are compared to each other and to a forest products plantation to illustrate strategic, technical and economic differences and similarities. Finally, several recent or current developments in harvesting equipment are described. (Author)

A80-11983 Source, supply and nature of municipal and industrial waste as a fuel. W. R. Niessen (Camp, Dresser and McKee, Inc., Boston, Mass.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 1015-1025. 10 refs.

A80-11984 Economy of a retrofit solar system, J. M. Schreyer (Oak Ridge National Laboratory, Oak Ridge, Tenn.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979. p. 1029-1041. Contract No. W-7405-eng-26.

A privately financed, double-glazed, flat-plate-collector-driven. solar-augmented hot water system was installed on an existing dwelling in which the hot water consumption averaged about 30 gallons per day. Data were obtained on the collector water temperature, storage tank temperature, amount of hot water used. and amount of supplemental electricity required. Using the data obtained from this \$1500 installation, it is shown that the payback period would be about 10 years. This assumes the replacement of electrical energy costing 5 cents per kWh, hot water usage rate of 30 gal/day and money borrowed at 10.5% interest. If the usage rate were 55 gal/day, the payback period would be about 5 years.

Commercial building and industrial applications for solar energy. V. R. Daiga (Owens-Illinois, Inc., Pittsburgh,

(Author)

Pa.) In: Energy technology VI: Achievements in perspective: Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 1046-1055.

A80-11985

The application of solar thermal energy collected by an evacuated tube collector to the supply of heat to commercial buildings and industrial processes is discussed. Evacuated tube solar collectors are described and the Sunpak solar collector, which consists of a manifold of 24 evacuated tubes, is presented. It is shown that the energy output characteristics of the Sunpak system. exhibit a higher operating efficiency and lower thermal losses and ambient temperature sensitivity compared to a flat plate solar collector with double glazing and a selective coating. The Sunpak collector has been applied to the heating and cooling of new and retrofitted commercial buildings, schools and industrial buildings, and in the supply of heat for a beer pasteurization process, utilizing various Sunpak-building interfaces in different climates. Experience has shown the collector system designs to be suitable to commercial and industrial process applications requiring heat up to 240 F, with favorable user reaction and maintenance requirements.

Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium. T. R. Tracey (Martin Marietta Aerospace, Bethesda, Md.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 1059-1065.

The paper proposes an alternative approach to solar thermal power plants to reduce the electricity cost relative to the first generation water/steam systems. The cost reduction is achieved by generating a 950 F 2400 psig steam by pumping an eutectic salt mixture of sodium nitrate and potassium nitrate as the heat transfer and storage medium to the steam generator and/or storage tank. The salt is inexpensive, has a very low vapor pressure at the use temperatures, does not react with air or water, and is not toxic. Studies of plant size, storage, collector field configuration, and receiver type indicate that the thermal storage cost below \$5.00/KWht and electricity cost below 40 mills/KWhe are a reasonable goal. A.T.

Industrial solar total energy systems. J. E. Rogan (McDonnell Douglas Astronautics Co., Huntington Beach, Calif.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 1066-1076. Contract No. EY-C-76-03-1132.

#### A80-11988

A program to define feasible solar energy systems which satisfy selected industry demands, and to determine the market potential of such systems is presented. The application of total energy systems where the industrial process heat, electrical demands, and space heating and cooling are satisfied at maximum efficiency was emphasized. Industrial energy usage was surveyed to produce first-level designs, and subsystem methodologies were established in collector performance and sizing, thermal storage, energy conversion, and heat transport. More than 40 first-level designs were generated in meat-packing, fluid milk, sugar beets, asphalt, and concrete block industries. Conceptual designs were then generated to determine system economics and market penetration showing positive returns on investment in the small central receiver configuration, and indicating that high performance distributed collectors, hightemperature low-vapor-pressure fluids, and small turbines need to be developed.

A80-11988 Near-term prospects for solar industrial process heat. K. C. Brown (Solar Energy Research Institute, Golden, Colo.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 1077-1085. 10 refs.

The paper reviews the state of solar technology and evaluates the prospects for early application and impact of solar industrial process heat. The distribution of the industrial process heat (IPH) demand by market required temperatures, and operating temperature ranges of solar collectors, including heliostat-power tower, point focus, and flat plate, are discussed. The twenty pilot projects which demonstrate the feasibility of solar energy to supply hot water, hot air, and steam to industrial process needs are described, noting that cost reductions will be achieved through experience, but the deleterious effects of air pollutants in the plant environment on solar system performance must be considered. It is concluded that the near-term impact of solar process heat will be affected by the resolution of key problems, which include the removal of economic uncertainties and unequitable subsidies, market identification, cost reduction, performance improvement, and accumulation of operating experience.

A80-11989 Improvements in the performance of a low cost thin film solar cell. J. D. Meakin (Delaware, University, Newark, Del.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 1088-1096. 11 refs. Contract No. EG-77-C-03-1576.

Improvements in the energy conversion efficiency of the low-cost CdS/Cu2S solar cell are reviewed. The development of the thin-film CdS solar cell up to 1975 is shown to have led to an average CdS cell efficiency of 6.1%. A formalized procedure for cell development based on a complete analysis of efficiency-limiting mechanisms, termed loss minimization, was then developed, resulting in a hybrid grid structure with a conversion efficiency of 8.55%. Subsequent modifications to the gridding have resulted in the demonstration of a 9.15% efficiency solar cell, which is close to its design limit, and technology improvements necessary to reach an efficiency of up to 11% have been defined. The substitution of zinc for 15% to 25% of the cadmium has been predicted to lead to efficiencies greater than 14%. A continuous-process pilot plant presently under construction is expected to demonstrate the feasibility of constructing and operating a full-scale manufacturing plant for CdS/Cu2S solar cells capable of selling for as little as \$250/kW as early as 1986. A.I.W.

A80-11990 Materials resource requirements and potential limitations in solar energy products. R. L. Watts (Battelle Pacific Northwest Laboratories, Richland, Wash.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 1097-1113.

A systematic methodology for identifying material constraints to the future expansion of advanced energy supply technologies is presented and applied to various solar energy applications. The identification process involves tracking the sources of technology components by means of an interactive computer system and evaluating their supply according to defined thresholds at various supply levels. Nine solar heating and cooling of buildings designs and three agricultural and industrial process heat designs, assuming scales of 500,000,000 sq m of collector area by the year 2000, are shown to be free of serious future material limitations; however, certain market and production variables indicated that it would be necessary to require monitoring of the supplies of iron and steel, soda lime glass and polyvinyl fluoride. For 13 photovoltaic cell designs in 15 configurations with total powers of 50 GWe by the year 2000, the analysis indicates definite availability constraints for indium, gallium and germanium in certain photovoltaic systems.

A80-11991 Materials research - Probable impacts on solar energy. D. K. Benson (Solar Energy Research Institute, Golden, Colo.). In: Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979. Washington, D.C., Government Institutes, Inc., 1979, p. 1114-1126. 6 refs. Contract No. EG-77-C-01-4042.

Consideration is given to the development of a materials science research program in order to accelerate the commercialization of solar energy conversion technologies by improving materials quality and decreasing life cycle costs. The methodology of research plan development includes the identification of materials problems and opportunities, the design of research paths for materials innovation or improvement, cost, benefit and success probability predictions, and synthesis into a program designed to maximize the probable benefit/cost ratio. Preliminary results of the solar materials research design methodology in use at the Solar Energy Research Institute are indicated, and it is shown that even a small improvement in the performance of certain solar technologies, especially utility-based OTEC, wind and solar thermal, can lead to large increases in market penetration and large displacements of fossil fuels. It is noted that materials studies can lead to fuel savings many times greater than the cost of initial research.

A80-11992 Ambient air measurements of petroleum refinery emissions. K. Sexton and H. Westberg (Washington State University, Pullman, Wash.). Air Pollution Control Association, Journal, vol. 29, Nov. 1979, p. 1149-1152. 12 refs. Research supported by the U.S. Environmental Protection Agency.

An ambient air monitoring program to characterize airborne emissions from the Exxon petroleum refinery at Benicia, California was conducted during September 8-22, 1975. Ground level sampling facilities and an instrumented aircraft provided an integrated, three-dimensional monitoring network. Measurements made during the study included ozone, oxides of nitrogen, methane, carbon monoxide, individual C2-C6 hydrocarbons, halocarbons, condensation nuclei, visual distance and various meteorological parameters. The study focused on three major areas: (1) the characterization of gaseous components within the refinery-effluent, especially nonmethane hydrocarbons and ozone, (2) natural sunlight bag irradiation experiments to determine the ozone forming potential of refinery emissions, and (3) an investigation of changes in plume chemistry as refinery emissions were transported downwind.

(Author)

A80-12027 # Stability of a system of coaxial superconducting shells (Ob ustoichivosti koaksial'noi sistemy sverkhprovodiashchikh obolochek). R. N. Ovakimian (Akademiia Nauk Armianskoi SSR, Institut Mekhaniki, Yerevan, Armenian SSR). Akademiia Nauk Armianskoi SSR, Izvestiia, Mekhanika, vol. 32, no. 3, 1979, p. 42-55. 8 refs. In Russian.

The paper investigates the stability of a system of superconducting coaxial cylindrical shells under the influence of electromagnetic loads. The effect of the cryogenic liquid is neglected. The

Maxwell equations are solved to obtain expressions for the linear current density and the magnetic field intensity. A dispersion equation is derived for the case of loading the system of current-carrying shells with a transverse electromagnetic force. The critical values of the electromagnetic load are determined by computer for different sizes of the inner shell. It is shown that the current-carrying shell is more stable in the coaxial system than when it is in a free state.

S.D.

A80-12049 The physics of laser fusion. H. Motz (Oxford University, Oxford, England). London and New York, Academic Press, 1979, 299 p. 207 refs. \$40.50.

The basic physical aspects of laser-driven fusion are considered. Fusion reactions and the generation of power from them are discussed and laser systems are treated. Plasma physics is introduced, with discussions of collective motions, wave propagation and transverse waves, and nonlinear plasma processes, including stimulated and spontaneous transitions, Cerenkov radiation, scattering processes and filamentation, are discussed. Attention is given to the quasi-potential, the ponderomotive force and the emission and absorption of laser light by an inhomogeneous plasma surrounding the target. Shock waves and implosions are treated, with consideration of shock propagation, detonation and the isentropic compression of thin shells, and the Rayleigh-Taylor and Bénard instabilities are considered. The characteristics of plasmas at high density, pressure and temperature are examined, and the Medusa and simulation computer codes are presented. Results from experiments concerning temperature determination, ion spectra, absorption and profile steepening are also reviewed.

A80-12125 Performance of silicon solar cells in front of a water absorber. J. D. Arora and P. C. Mathur (Delhi, University, Delhi, India). *International Journal of Electronics*, vol. 47, Aug. 1979, p. 167-170. 5 refs.

I-V curves as a function of path length in ordinary and distilled water have been measured for two n-on-p diffused junction silicon solar cells. The normalized short circuit current and normalized conversion efficiency for the cells for different path lengths are determined from the I-V curves and comparison of the experimental results has been made with theoretical calculations. It is found that the agreement between the theoretical and experimental results is better for the cell having low substrate acceptor concentration. The agreement is still better with distilled water results. (Author)

A80-12128 # Measurement of gaseous hydrogen chloride emissions from municipal refuse energy recovery systems in the United States. R. Rollins and J. B. Homolya (U.S. Environmental Protection Agency, Environmental Sciences Research Laboratory, Research Triangle Park, N.C.). Environmental Science and Technology, vol. 13, Nov. 1979, p. 1380-1383, 14 refs.

Measurements were carried out at two refuse energy recovery systems to assess the atmospheric emissions of HCL. Flue gas measurements data were used to establish both emission factors and mass emission rates. The latter were used as inputs to an elevated point source dispersion model to estimate maximum surface concentrations of HCl under a variety of meteorological conditions. The projected ambient HCL levels associated with refuse energy recovery processes raise a question regarding the potential for significant materials damage resulting from uncontrolled emissions. (Author)

A80-12166 Flywheels for energy storage. A. R. Millner (MIT, Lexington, Mass.). *Technology Review*, vol. 82, Nov. 1979, p. 32-40. 8 refs.

Flywheels are considered as an economical means of storing energy generated by solar and wind power systems and electric utilities when demand is low until the demand is high. The structural failure modes of flywheel materials are examined, noting the favorable characteristics of anisotropic wound fiber or fiber composite construction, and estimates of rotor size on the order of one

ton for domestic applications (40 kWh storage capacity) are presented. Magnetic bearings are proposed as means of eliminating rotor drag in a vacuum environment while drawing only a small current and being capable of operating for at least 20 to 30 years. The design of motor-generators to convert electrical energy to mechanical energy and back again is examined, and brushless magnetic motor-generators are discussed. Cost comparisons show that flywheel storage could be cost-competitive with battery systems over a 20-year lifetime.

A.L.W.

A80-12244 Activity tests of various catalysts for hydrocracking of coal by means of high pressure differential thermal analysis. K. Tanabe, H. Sasaki, H. Hattori, K. Ouchi, K. Makino, H. Itoh (Hokkaido University, Sapporo, Japan), and G. Takeya (Hakodate Technical College, Hakodate, Japan). Fuel Processing Technology, vol. 2, Oct. 1979, p. 253-259. 12 refs.

The activities of fourteen kinds of catalysts for the hydrocracking of Taiheiyo coal were examined by a high pressure differential thermal analytical method. Exothermic peaks appeared at low temperatures (420-430 C) when MoO3-TiO2, Ni-Y zeolite and Co-Y zeolite were used as catalysts, indicating that these catalysts are highly active compared with other catalysts, including MoO3-CoO-Al2O3. The qualitative analysis of gas and liquid products revealed that MoO3-TiO2 and Co-Y are good catalysts for the liquefaction reaction. The hydrogenation ability of the catalyst is concluded to be more important than its acidity. (Author)

A80-12245 An update of German non-isothermal coal pyrolysis work. H. Jüntgen and K. H. Van Heek (Bergbau-Forschung GmbH, Essen, West Germany). Fuel Processing Technology, vol. 2, Oct. 1979, p. 261-293. 50 refs.

The paper describes the theoretical and experimental approaches used and the results obtained so far from basic studies of coal pyrolysis at Bergbau-Forschung. Attention is given to nonisothermal kinetics of gas formation, interplay of devolatilization with combustion, interaction of pyrolysis and gasification, and pyrolysis under extremely high temperatures. Further work must take pressure into account, as trends in modern coal processing are toward elevated pressures in gasification and even combustion. Pressure could also be an additional factor in controlling the rates and yields of products.

S.D

A80-12246 Catalysis of hydrogen transfer in a tetralin-coal system. M.-C. Tsai and S. W. Weller (New York, State University, Buffalo, N.Y.). Fuel Processing Technology, vol. 2, Oct. 1979, p. 313-316. 7 refs. Research supported by the U.S. Department of Energy.

The paper is concerned with hydrogen donation from tetralin to coal in the presence of either 'cobalt-molybdate'-alumina (Co/Mo/ Al2O3) or stannous chloride (SnCl2.2H2O). The former is known to be outstanding for hydrodesulfurization, the latter for hydroliquefaction of coal. Procedures and calculation methods differ in detail from those described by Neavel (1976), but definitions of hydrogen transfer and coal conversion are the same as his. The experiments are conducted in a small turbine reactor. As preliminary 'blank' experiments, two runs at 400 C are made with tetralin in the absence of coal but in the presence of catalyst in order to establish whether the reaction tetralin yielding naphthalene + H2 proceeds to any appreciable extent. Results in all the tetralin-coal runs are summarized in tabular form. For one coal, at least, the experiments demonstrate that hydrogen transfer at 400 C from tetralin to coal can be catalyzed by either Co/Mo/Al2O3 or SnCl2.2H2O, the latter being more effective.

A80-12310 Processing of coal, oil sand and heavy oil in situ by electric and magnetic fields. S. T. Fisher (F. T. Fisher's Sons, Ltd., Montreal, Canada). Canadian Electrical Engineering Journal, vol. 14, Oct. 1979, p. 15-18. 6 refs.

The paper presents the results of a study made to determine the feasibility of extracting the energy commodities - electricity, gas, petroleum, coke, and chemical feedstocks - from coal, oil sand, and

heavy oil, heating the deposits by electric and magnetic fields. It is reported that available electrical and chemical data indicate that this process may be technically and economically feasible. It is noted that some basic data are missing making it necessary to indicate possible ranges of values for some parameters. It is tentatively concluded that: (1) all these solid fossil fuels can be successfully processed underground, (2) all five energy commodities can be produced economically in adequate quantities for a period of a century or more, and (3) the development and construction time required is short enough to permit uninterrupted supply of energy commodities as present sources decline.

M.E.P.

A80-12311 Physical modelling of the electromagnetic heating of oil sand and other earth-type and biological materials. F. E. Vermeulen, F. S. Chute, and M. R. Cervenan (Alberta, University, Edmonton, Canada). Canadian Electrical Engineering Journal, vol. 4, Oct. 1979, p. 19-28. 25 refs. Research supported by the Alberta Oil Sands Technology and Research Authority and Natural Sciences and Engineering Research Council.

Maxwell's equations and the thermal equation for heat flow are considered and scaling criteria are developed which show that it is possible to construct scaled physical models in which the electromagnetic and thermal phenomena of the full scale system can be modeled simultaneously. It is demonstrated that simultaneously modeling is made possible by simulating electromagnetic frequency and thermal events on different time scales. It is also shown that simultaneous modeling of electromagnetic and thermal phenomena can be carried out when the electrical conductivity of the medium of the full scale system is temperature dependent. The electrical and thermal properties of oil sand and the general problem of in-situ recovery of oil therefrom have been used to guide the development of the modeling criteria. It is concluded that the results obtained can be applied to a large class of other problems as well, such as electromagnetic heating of earth-type materials in the mining and construction industry, as well as the electromagnetic heating of food stuffs and biological tissue. M.E.P.

A80-12426 Computers in the design of solar energy systems. S. A. Klein, J. W. Mitchell, J. A. Duffie, and W. A. Beckman (Wisconsin, University, Madison, Wis.). *Energy* (UK), vol. 4, Aug. 1979, p. 483-501. 58 refs. NSF-supported research; Contract No. E(11-1)-2588.

The methodology developed for detailed simulations of solar energy systems is presented. Consideration is given to the development of models for several specific system components from which the simulation model of a system is composed. The models are formulated from basic engineering principles, and a sensitivity analysis is performed to find those simplifications which yield a computational efficient, yet accurate, solution. Three components, a collector, storage tank, and building structure, are used as examples. These components are then combined into a simulation model for the space and hot water heating system of the Solar House. The performance data available from this house is compared with the simulation results. Emphasis is placed on simplified design methods based on the results of detailed computer simulations.

A80-12427 On the performance of air-based solar heating systems utilizing phase-change energy storage. J. J. Jurinak and S. I. Abdel-Khalik (Wisconsin, University, Madison, Wisc.). *Energy* (UK), vol. 4, Aug. 1979, p. 503-522. 22 refs. Contract No. E(11-1)-2588.

Simulation techniques are used to examine the performance of air-based solar heating systems utilizing phase change energy storage (PCES). The effects of storage size, melting temperature, and latent heat on the thermal performance of the system are quantified for various load characteristics, collector types, and control strategies. The effect of semi-congruent melting of the phase-change material (PCM) on system performance is also examined. Based on these simulations, (1) optimum physical properties of the PCM have been identified, (2) an empirical method for sizing PCES units has been developed, (3) a system-oriented figure of merit for comparing different PCMs has been established, and (4) the economic gains

associated with the storage volume reductions achieved with PCES, vis-à-vis sensible heat storage in rock beds, have been quantified.

(Author)

A80-12428 Insolation modeling overview. E. C. Boes (Sandia Laboratories, Albuquerque, N. Mex.). *Energy* (UK), vol. 4, Aug. 1979, p. 523-529. 9 refs. Contract No. DE-AC04-76DP00789.

This paper gives a summary of some of the major national projects in the area of solar radiation resource assessment. It also discusses the primary solar radiation data sources for the U.S. and the models that were used in developing these sources. Recommendations for appropriate solar radiation resource information for various types of solar system design and analysis needs are given. (Author)

A80-12429 Validation of computer models for predicting radiation levels on tilted surfaces. L. J. Lantz and C. B. Winn (Solar Environmental Engineering Co., Fort Collins, Colo.). *Energy* (UK), vol. 4, Aug. 1979, p. 531-536. 8 refs.

A methodology is developed for the validation of computer models used to predict the instantaneous radiation on a tilted surface, given the similar radiation on the horizontal surface. The resulting methodology is also used to evaluate algorithms used to predict horizontal radiation from surface and cloud cover statistics as well as the radiation model used in program SOLCOST which predicts the expected mean daily total radiation for a specific surface and location using primarily the per cent of possible sunshine value. Attention is given to the three phases of the validation process: (1) collection and evaluation of measured data, (2) discussion of model logic and assumptions, and (3) consideration of the statistics of model calculation versus measured results. Finally, the model validation methodology is presented and illustrated by analysis of four computer models used to predict instantaneous radiation levels on tilted surfaces.

A80-12430 Solar cooling performance predictions via stochastic weather algorithms. D. K. Anand and I. N. Deif (Maryland, University, College Park, Md.). *Energy* (UK), vol. 4, Aug. 1979, p. 537-548. 5 refs. Contract No. EY-76-S-05-4976-A003.

A80-12431 Validation methodology for solar heating and cooling systems. D. K. Anand, W. J. Kennish, A. C. Stolarz (TPI Inc., Energy Systems Analysis, Beltsville, Md.), and T. M. Knasel (Science Applications, Inc., McLean, Va.). *Energy* (UK), vol. 4, Aug. 1979, p. 549-560. 15 refs. Contract No. EM-78-C-04-4261.

The paper presents the validation methodology for solar heating and cooling computer programs to provide levels of confidence associated with detailed and simplified analysis models. A 4 level methodology is proposed, the first dealing with the validation of simulation programs with respect to unmodeled parameters, the second addressing the inaccuracies in simplified analysis procedures due to unmodeled parameter variation, while level three deals with assessment of variation in results due to the field variation of modeled parameters. Level four provides a verification of the results of level three by comparison studies with field performance data, resulting in a quantification of the level of confidence with which the simplified analysis program can be used. A case study was prepared to illustrate the Monte Carlo techniques suggested in levels two and three, concluding that this validation methodology will help establish an efficient solar system testing program.

A80-12432 Instrumentation principles for performance measurement of solar heating systems. N. Lior (Pennsylvania, University, Philadelphia, Pa.). *Energy* (UK), vol. 4, Aug. 1979, p. 561-573. 49 refs. Research supported by the U.S. Department of Energy.

An instrumentation design and implementation plan for monitoring the performance of solar heating systems and their components is described. Specifically, the selection of the data acquisition system and of the sensors, the procurement process, and installation and calibration principles are discussed in detail. As a practical example, the cost and choice of measurement methods and

instruments used in the University of Pennsylvania SolaRow house are presented. (Author)

A80-12433 A microeconomic approach to passive solar design - Performance, cost, optimal sizing and comfort analysis. S. Noll and W. O. Wray (California, University, Los Alamos, N. Mex.). Energy (UK), vol. 4, Aug. 1979, p. 515-591. 13 refs. Research supported by the U.S. Department of Energy.

This paper presents a microeconomic methodology for the analysis and design evaluation of residential passive solar heating applications. Results from PASOLE, an hour-by-hour thermal network simulation program developed at Los Alamos, are used to graphically evaluate design-performance tradeoffs and to estimate quantitative interpolative relationships within the context of economic production function theory. Solar performance isoquants are generated and combined with architectural costs estimates to arrive at least-cost expansion paths along which the optimal life-cycle system can be determined. Comfort considerations, sizing limitations, building code restrictions and other factors introduce constraints in the design process, which can be dealt with qualitatively or quantitatively through a constrained optimization procedure.

(Author)

A80-12434 Optimal insulation of solar heating system pipes and tanks. G. F. Jones and N. Lior (Pennsylvania, University, Philadelphia, Pa.). Energy (UK), vol. 4, Aug. 1979, p. 593-621. 10 refs. Research supported by the Pennsylvania Science and Engineering Foundation, U.S. Department of Housing and Urban Development, and U.S. Department of Energy.

A compact and time-effective insulation design procedure for solar heating system piping and water-filled thermal storage tanks is presented. The economics were treated by a present-value life-cycle cost analysis by determining the effects of piping variables and tank heat transfer coefficient values. It was found that only the pipe or tank diameter, the thermal conductivity of insulation, and the insulation thickness affect the overall heat transfer coefficient; the design data based on this result are presented which can be used to determine the optimal insulation thickness and type, annual heat losses, present-value annual insulation costs and lost heat, and overall insulation R-values. A major conclusion is that insulation cost in solar systems is significant, and that heat losses through insulation can amount to an important portion of the useful solar energy collected.

A.T.

A80-12435 Passive and active residential solar heating: A comparative economic analysis of select designs. F. Roach, S. Noll (California, University, Los Alamos, N. Mex.), and S. Ben-David (New Mexico, University, Albuquerque, N. Mex.). *Energy* (UK), vol. 4, Aug. 1979, p. 623-644. 13 refs. Research supported by the U.S. Department of Energy.

A comparison is made between four passive solar heating concepts and a conventional air collector/rock storage system. Masonry (Trombe) and water walls are considered in the presence and absence of night insulation, and the performance of optimally sized systems is evaluated on a state-by-state basis. In addition, the effects of low interest loans and National Energy Act (NEA) income tax credits are examined. It is shown that with natural gas as the alternative fuel, the passive designs evaluated offer more promise than the active system. In addition, it is noted that the passive designs are economically competitive against the electric resistance alternative in all but a few states. Finally, on a life cycle cost basis, these designs are shown to be feasible today.

A80-12436 The marginal cost of electricity used as backup for solar hot water systems - A case study. R. Bright and H. Davitian (Brookhaven National Laboratory, Upton, N.Y.). Energy (UK), vol. 4, Aug. 1979, p. 645-661. 10 refs. Contract No. EY-76-C-02-0016.

A80-12437 Determination of the optimal solar investment decision criterion. M. R. Sedmak (Booz Allen and Hamilton, Inc., Bethesda, Md.) and E. M. Zampelli (PRC Energy Analysis Co., McLean, Va.). Energy (UK), Aug. 1979, p. 663-683. 10 refs.

This paper deals with the validity of the solar investment decision criteria employed in various studies. The life-cycle cost criterion (or positive net present value criterion) commonly used by solar analysts is examined, and it is shown that, given the theoretical hypotheses of dynamic investment planning and decision making, this criterion is suboptimal for evaluating the economic viability of fuel-saver solar systems. The optimal 'present cost competitive' criterion is then established and analyzed. The effect of uncertainty is introduced into the analysis by an examination of the payback-period criterion. To highlight the differences between these criteria, a comparison of the timing of and net benefits derived from investments in a residential solar space and water heating system made under each criterion is presented. (Author)

A80-12438 \* A high performance porous flat-plate solar collector. F. L. Lansing, V. Clarke (California Institute of Technology, Jet Propulsion Laboratory, Pasadena, Calif.), and R. Reynolds (Kentrol International, Inc., Pasadena, Calif.). *Energy* (UK), vol. 4, Aug. 1979, p. 685-694. 15 refs. Contract No. NAS7-100.

A solar collector employing a porous matrix as a solar absorber and heat exchanger is presented and its application in solar air heaters is discussed. The collector is composed of a metallic matrix with a porous surface which acts as a large set of cavity radiators; cold air flows through the matrix plate and exchanges heat with the thermally stratified layers of the matrix. A steady-state thermal analysis of the collector is used to determine collector temperature distributions for the cases of an opaque surface matrix with total absorption of solar energy at the surface, and a diathermanous matrix with successive solar energy absorption at each depth. The theoretical performance of the porous flat plate collector is shown to exceed greatly that of a solid flat plate collector using air as the working medium for any given set of operational conditions. An experimental collector constructed using commercially available, low cost steel wool as the matrix has been found to have thermal efficiencies from 73 to 86%. AIW

A80-12439 Modeling of a thermal wall panel using phase change materials. S. I. Guceri and S. F. Faunce (Delaware, University, Newark, Del.). *Energy* (UK), vol. 4, Aug. 1979, p. 695-699. 8 refs.

This work presents a model for a phase-change material (PCM) thermal wall being tested at the University of Delaware's Solar One House under the auspices of the Institute of Energy Conversion. The PCM is contained in small-diameter tubes with staggered arrangement. Charging of the unit is done during the periods of insolation by using direct solar radiation. The discharge of the unit is provided by air flow across the tube arrangement to carry heat; a computer model is developed to predict the response of the unit during its discharge from a given initial state. The tubes are lumped in groups of three along the air stream. The Biot number is found to be less than 0.1, which indicates that the error associated with lumping is less than 5%. Each bundle of tubes is considered in three distinct regimes: presolidification, solidification, postsolidification. The model developed thus far has been used to predict the time response of the wall panel in satisfactory agreement with the actual performance. The simulation helped to establish the important system parameters. (Author)

A80-12440 Design criteria in PCM wall thermal storage. A. D. Solomon (Union Carbide Corp., Nuclear Div., Oak Ridge, Tenn.). Energy (UK), vol. 4, Aug. 1979, p. 701-709. 15 refs. Contract No. W-7405-eng-26.

Criteria for optimizing the thermal behavior of a wall composed of a phase-change material interspersed in a cementlike structural material are discussed. Results of computer simulations for a particular wall configuration are examined, and the heat-transfer process in such a system is interpreted. Some quantitative relations describing the wall behavior are outlined. The temporal variation of the wall system is considered, and an approximate expression is obtained for the total discharge time for stored latent heat in the wall.

F.G.M.

A80-12453 A simple model describing hydrogen re-cycling in fusion experiments and its influence on discharge behaviour. W. Köppendörfer (EURATOM and Max-Planck-Institut für Plasmaphysik, Garching, West Germany). *Nuclear Fusion*, vol. 19, Oct. 1979, p. 1319-1325, 13 refs.

A model first used to describe hydrogen isotope trapping and replacement in the wall of pinch discharges is extended to tokamak discharges including pulsed gas inlet. It calculates the trapped-particle density in the walls versus time as a function of trapping coefficient, replacement cross-section, geometrical factors, particle confinement time and cold-gas influx. The solutions are used to describe the development of the average electron density and yield criteria for the conditions under which the plasma density falls or rises during a discharge. The model also allows a distinction between plasma/limiter and plasma/first-wall interaction. A comparison with measurements from tokamak discharges is made. (Author)

A80-12607 Monitoring of the solar-heated modular homes at Los Alamos, J. C. Hedstrom (California, University, Los Alamos, N. Mex.). In: International Instrumentation Symposium, 25th, Anaheim, Calif., May 7-10, 1979, Proceedings. Part 1.

Pittsburgh, Pa., Instrument Society of America, 1979, p. 121-126

On-line performance of an active solar heated Modular Home has been obtained since October, 1976, with a desk top calculator controlled data acquisition system. A second passive heated Modular Home has been installed and is being monitored with the same system to obtain a comparison between the two units. This paper describes the modular homes, the data system and data reduction technique and presents some of the results obtained. (Author)

A80-12608 Heat flow meters for solar system performance monitoring. G. Russell (Conserdyne Corp., Glendale, Calif.). In: International Instrumentation Symposium, 25th, Anaheim, Calif., May 7-10, 1979, Proceedings. Part 1. Pittsburgh, Pa., Instrument Society of America, 1979, p. 131-134.

Heat-flow meters for solar heating applications are needed to provide a low-cost verification of the solar system's performance level. Due to the wide variety of temperature and flow conditions encountered in this field, designers should be aware of all the options available to them in order to design flexible, accurate, and economical heat-flow meters. In the present paper, the basic theory of heat flow measurement is outlined, and the types of temperature sensing devices, flow measurement devices, and electronics packages needed to manufacture heat-flow meters that will operate under various temperature and flow conditions are discussed.

V.P.

A80-12609 Energy meter for solar air systems. C. B. Winn (Colorado State University, Fort Collins, Colo.). In: International Instrumentation Symposium, 25th, Anaheim, Calif., May 7-10, 1979, Proceedings. Part 1. Pittsburgh, Pa., Instrument Society of America, 1979, p. 135-138.

The paper deals with a low-cost energy meter developed for homeowners to determine (without computation) the amount of solar energy being collected. The energy readings are either in British thermal units or kilowatt hours. The display is digital and nonvolatile. The meter takes into account the different air flow rates that occur in air systems, depending on the mode of operation. The power consumption of the meter is negligible.

V.P.

A80-12626 Color graphic controls for the solar central receiver test facility. D. M. Darsey (Sandia Laboratories, Albuquerque, N. Mex.). In: International Instrumentation Symposium, 25th, Anaheim, Calif., May 7-10, 1979, Proceedings. Part 2.

Pittsburgh, Pa., Instrument Society of America, 1979, p. 345-352. 5 refs. Research supported by the U.S. Department of Energy.

The generalized, programmable graphics-and-image display terminal used at the Sandia central receiver test facility (CRTF) is described. The graphics hardware, integration software, and applica-

tion programs are discussed as they apply to the real-time control and data presentation of the testing facility. The terminal features a single Facility Operator, separated controls for the Facility Operator and Experimenter with common display data, rapid display update without affecting control, and easily read data in engineering units. The flexibility of the display terminal will enable the CRTF to be tailored for new types of tests without changing anything but software of just interacting with a master control system.

A80-12627

Thalhammer and G. S. Phipps (Sandia Laboratories, Albuquerque, N. Mex.). In: International Instrumentation Symposium, 25th, Anaheim, Calif., May 7-10, 1979, Proceedings. Part 2. Pittsburgh, Pa., Instrument Society of America, 1979, p. 353-364, 9 refs.

The Beam Characterization System utilizes video radiometer techniques to quantitatively describe the solar energy projected by a heliostat. This system is designed to evaluate prototype heliostats and to improve the performance of the Central Receiver Test Facility heliostats. The system consists of a beam target, video camera, analog image analyzer, calibration system, video digitizer and a minicomputer system. The calibration technique corrects for background illumination, target irregularities, vidicon shading and camera dark currents. A computer code corrects for off-axis camera angle and converts calibration and beam data into a map of screen irradiance. Post test data analysis provides the geometric centroid, energy versus radius, iso-flux contours, intensity cross sections and 3-D intensity diagrams which are determined from the data map. The system has a fast data capture mode which can be used to study wind loading and short term tracking errors. The capabilities of the Beam Characterization System make it a useful heliostat evaluation tool.

A80-12628 An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory. G. I. Chandler, J. W. Lilberg, K. A. Klare, and R. W. Wilkins (California, University, Los Alamos, N. Mex.). In: International Instrumentation Symposium, 25th, Anaheim, Calif., May 7-10, 1979, Proceedings. Part 2.

Pittsburgh, Pa., Instrument Society of America, 1979, p. 365-370. 7 refs.

An overview of the use of computers for data acquisition and control in fusion experiments is presented. Small to medium scale minicomputers interfaced to the experiment through CAMAC modules were used. System shielding and grounding were given special consideration. It is noted that the use of top-down, modular design techniques for both software and hardware increases system reliability and reduces system maintenance effort. The systems discussed can also be used for on-line data analysis and linked to a center where additional off-line analysis can be performed.

A80-12735 # Area load-frequency control. T. M. Athay, R. G. Smith (Systems Control, Inc., Palo Alto, Calif.), and H. G. Kwatny (Drexel University, Philadelphia, Pa.). In: Annual Allerton Conference on Communication, Control and Computing, 16th, Monticello, Ill., October 4-6, 1978, Proceedings. Urbana, Ill., University of Illinois, 1978, p. 882-893. 12 refs. Contract No. EG-77-01-2118.

Four basic objectives of load-frequency control (LFC) are discussed: (1), total-area generation should be controlled so as to track the area load plus schedule; (2) the individual-unit generations should be controlled so as to track the desired unit economic trajectories; (3) load-frequency control should allow the area primary response to occur naturally; and (4) individual-unit response rate limitations must not be violated. The parallel structure of LFC is exploited by designing independent controllers for each generating unit and a coordinating controller for the control area. These two components of the LFC structure are discussed and evaluated using a combination of the linear-quadratic-Gaussian (LOG) synthesis techniques, linear simulation, and frequency domain analysis.

A80-12739 Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Convention sponsored by the Solar Energy Society of India, Council of Scientific and Industrial Research, Department of Science and Technology, et al. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979. 742 p. \$30.

The convention focused on solar radiation, photobiology, photochemistry, flat plate collectors, concentrators, solar thermal power and storage, solar water heaters and refrigerators, industrial applications and solar cells. Specifically, papers were presented on energy plantation for the Coromandel littoral, photogalvanic cells, effect of boosters on the flat plate collector performance, transient rise of plate temperature in solar collectors, performance of a high temperature air heater, an investigation of a compound parabolic concentrator, a seasonally adjusted collector made of mirror strips, testing of solar domestic water heaters, utilization of solar energy in dairy processing, design of a solar heated house, solar furnaces in foundries, role of the oxide layer in Schottky barrier solar cells, cadmium telluride solar cells, annealing and degradation studies of ceramic CdS solar cells, solar radiation, an electronic device for intermittent tracking, and performance of solar regenerators. A.T.

A80-12740 # Solar energy availability over India for maximum utilisation. H. R. Ganesan (Meteorological Office, Poona, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 1-7.

A80-12742 # Energy plantation for coromandel littoral. C. V. Seshadri and G. Venkataramani (Shri A.M.M. Murugappa Chettiar Research Centre, Madras, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 36-40.

The paper considers an energy plantation which grows plants for their fuel value with casuarina as the energy crop. In energy plantations the fuel resource is renewable, fuel transportation is minimal, and forestation conserves soils; however, large areas are needed, and new power plant designs may be required for the new fuel. Using Pondicherry and Madurantakam, India, cultivation practices, cost and energy analyses were performed for setting up a 160 MWe power-plant burning fuel-wood from the casuarina tree. The Pondicherry method using 10,000 trees/ha and producing up to 300 tons/ha-in a 4-year cycle appears most suitable, requiring 1.1 sq km per MW. The plantation should be amortized in 5 to 30 years, with the land becoming wholly owned by the plantation at the end of longer periods. It is concluded that energy plantations provide means of generating small amounts of decentralized power for rural use.

A80-12743 # Studies of photogalvanic cells. R. Narayan and M. Subrahmanyam (Indian Institute of Technology, Madras, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 56-59. Research supported by the Department of Science and Technology of India.

An investigation to determine redox couples in combination with platinum and other electrode materials to provide good efficiency and reproducibility is presented. The reasons for poor efficiency are the internal cell resistance, the back reaction, and incorrect pretreatment of electrodes. Platinum gauze and foil, sintered Ta cylinders, Ta plates, stainless steel sheets, and carbon blocks were used as electrodes. Co(2+), Co(3+), and Cr(3+) ions, thionine dyes, and H2SO4 and HCI electrolytes were tested, noting that with Co(2+) and thionine in HCI a photogalvanic (pg) potential of -70 to -90 mV was observed with Pt electrodes. With stainless steel plate electrodes about -300 mV pg effect was obtained within two

minutes of illumination, but the current through an 100 ohm resistance was only 20-30 microamperes requiring a modification of the cell geometry and chemistry.

A.T.

A80-12744 # Effect of boosters on the performance of flat plate collector. P. C. Pande, H. P. Garg, and K. P. Thanvi (Central Arid Zone Research Institute, Jodhpur, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India. December 20-22 1978

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 61-70. 8 refs.

The effect of boosters (plane reflectors) on the performance of a flat plate collector inclined at an optimum tilt is determined for different seasons. The integrated enhancement in the energy gain by the collector due to boosters is calculated considering variation of transmittance of glass cover with angle of incidence, absorptance by the collector plate, and the total collector area exposed by the reflected radiations. It was found that more solar energy can be collected by adding boosters to the flat plate collector, which will be more effective with a large number of these collectors. During winter, a booster at the top edge of the south facing collector is more effective than that at the bottom edge, while the reverse is true during the summer. An experimental study of the improvement in the performance of a built-in storage type solar water heater by boosters was performed, concluding that available solar radiation should be analyzed in terms of direct and diffuse radiation before using the booster.

A80-12745 # Solar energy flat plate collectors - Optimization of air gap. N. M. Nahar and H. P. Garg (Central Arid Zone Research Institute, Jodhpur, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 71-78. 13 refs.

Convection losses between the absorber plate and glass cover calculated for various gap sizes and temperatures using previously developed correlations of natural convection in enclosed spaces are examined. The natural convective heat transfer coefficients were developed for horizontal, vertical, and tilted collectors, noting that coefficients decrease and shading on absorber plates due to side walls increases with increasing gap. The shade correction factor was calculated for several optimum tilt values of the collector at low and medium latitude stations. The gap between the absorber and cover glazing was optimized by considering natural convection and shading, concluding that for minimum convection losses and shading a 4 to 5 cm gap should be maintained for efficient use of a solar energy flat plate collector.

A80-12746 # Transient rise of plate temperature in solar collectors. M. S. Sodha, S. C. Kaushik, G. N. Tewari, A. K. Seth (Indian Institute of Technology, New Delhi, India), and M. A. S. Malik (Kuwait Institute of Scientific Research, Kuwait). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 84-87.

A80-12747 # Optical and electrical investigations on annealed indium oxide selective coatings produced by spray pyrolysis. A. K. Sharma, B. K. Gupta, S. S. Mathur, and O. P. Agnihotri (Indian Institute of Technology, New Delhi, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 119-121.

A80-12748 # An investigation of experimental performance of a compound parabolic concentrator. K. K. Rao (Regional Research Laboratory, Bhuvaneswar, India), S. B. Ahmed (Corporate R&D BHEL, Hyderabad, India), R. Natarajan, and M. C. Gupta (Indian Institute of Technology, Madras, India). In: Solar energy for

rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 137-141. 5 refs.

An experimental performance of a header-type compound parabolic concentrator (CPC) and a flat-plate collector (FPC) were investigated. Two collector configurations were considered: a collector with the absorber tubes oriented in the east-west direction, and a configuration in which the absorber tubes of the FPC were oriented in the north-south direction. The effects of several fluid flow rates and tilt angles on efficiency and useful thermal energy gain was determined as a function of the hour of the day. The CPC was found to be more efficient than FPC for two hours around noon when the tilt was equal to declination, but the FPC had better over-all performance when the tilt angle was equal to latitude.

A80-12749 # Performance of solid compound parabolic concentrators in series. R. Kumar, S. B. L. Garg, and R. K. Bhardwaj (Motilal Nehru Regional Engineering College, Allahabad, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemi-

cals Research Institute, 1979, p. 142-147. 5 refs.

The possibility of combining two or three solid compound parabolic concentrators (CPC) one over the other using materials of different refractive indices for collecting radiation at high concentration ratios is investigated. It was found that for the same aperture and concentration ratios, the collecting surface area of a multistage collector is minimized with a substantial saving in overall depth as compared to a single stage CPC above a critical concentration factor. For a satisfactory design, the first stage acceptance angle should be smaller than that of the second stage concentrator, and the divergence angle of a light beam higher than in a single CPC. It is concluded that collectors with more than two-stages have only limited advantages for reasons of absorption and refraction of rays.

A80-12750 # A seasonally adjusted concentrating collector made of mirror strips. S. C. Mullick and S. K. Nanda (Indian Institute of Technology, New Delhi, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 153-157. 11 refs.

The design and thermal performance of a seasonally adjusted concentrating collector for a tubular absorber with a glass cover, limiting the number of reflections and the incidence angle, are presented. Absorber design is discussed, noting that the angle of incidence on the glass cover can be limited to any desired value for efficient transmission by the proper choice of the ratio of the absorber radius to the glass tube. The sizes of the absorber and the glass tube are computed by thermal network analysis of radiation and convection heat losses from the absorber to the glass cover, and then to the atmosphere: the slope and the width of reflector mirror strips are related to incident rays. Finally, testing of the collector is described, with the optical efficiency determined under steady insolation and minimal heat losses.

A80-12751 # Selection of working fluids for low temperature solar thermal power cycles. A. Jaganmohan and S. G. Kandlikar (Indian Institute of Technology, Bombay, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 159-165. 10 refs.

The effect of the working fluid properties and the operating temperatures on the Rankine cycle performance and the turbine design in solar thermal power plants is investigated. The saturation curves, specific volume and latent heat, and stability are discussed; the performance of seven working fluids is compared. All the fluids are stable up to 110 C, but acetone is explosive requiring special care in operating a power plant. The vapor after isentropic expansion for

R-11, R-21, methylene chloride and acetone is slightly in the wet region, and steam has the maximum efficiency, but is not recommended for low temperature cycles. However, for high temperature cycles with large power outputs steam is highly suitable. For low temperature cycles, methylene chloride, R-113, R-11, and R-114 are recommended in that order for low power units. For slightly higher temperature cycles and also for medium sized units, methylene chloride is promising and should be experimentally investigated. A.T.

A80-12752 # Prime mover for solar power plant. S. C. Jain (Samrat Ashok Technology Institute, Vidisha, India), A. Jaganmohan, and B. S. Jagadish (Indian Institute of Technology, Bombay, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 166-170.

Design and development of a 5 kW turbine for a solar power plant are presented. The Freon-11 working fluid is used with the operating cycle between 80 and 40 C. Design assumes a flat plate collector system which sets an upper limit to the maximum cycle temperature and restrictions on the working fluid. The turbine wheel blades were produced as integral parts of the wheel disk, and featured enclosure of the high pressure end of bearing and labyrinth sealing on the low pressure side with a provision for a direct drive. The performance test is discussed, noting that the turbine performance depends on the ratio of the blade to fluid velocity, and that an optimum exists for each mass flow rate condition. It is concluded that these initial tests proved the feasibility of turbine design for small outputs of the order of 5 kW at moderate rotational speeds.

ΑТ

A80-12753 # A parametric study of solar thermal power plant. A. A. Samuel, U. S. P. Shet, K. A. Bhaskaran, and M. C. Gupta (Indian Institute of Technology, Madras, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 171-179.

The solar thermal power plant discussed in this paper consists of four subsystems; collector system, storage system, prime mover, and generator. The paper considers a Rankine cycle engine which has high thermal efficiency, relatively simple mechanical components and acceptability for use over a wide range of powers. Three working fluids (butane, F113 and F114) are selected because of their low boiling point, high molecular weight and positive slope of vapor saturation curve. A parametric study is carried out to shed light on the design of a solar thermal power plant. The results show the effect of mass flow rate of the working fluid turbine inlet temperature and condenser pressure on thermal and cycle efficiencies of solar thermal power plants that use different working fluids. The results point to the great potential of a solar thermal power plant. Power could be derived more efficiently using a double-fluid Rankine cycle with water as the collector fluid and F114 as the working fluid. A double-glazed collector is seen to improve system efficiency by 1% with 4-C increase in optimum collector temperature.

A80-12754 # Economics of small solar power plants. B. S. Jagadish (Indian Institute of Technology, Bombay, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 180-185. 15 refs.

The economic parameters of energy conversion using flat plate collector systems in the output range of 5-25 kW (suitable for rural applications) are examined. Both capital cost per installed kW capacity and the cost of energy per kWH are computed. Some ways

to make such systems more efficient are discussed.

A80-12755 # Storage of solar heat by solid-liquid phase change. V. Seeniraj (Government College of Technology, Coimbatore, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December

24

20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 186-189. 9 refs.

The storage of solar energy using phase change materials possessing high heats of fusion is analyzed for two energy storage and extraction configurations. Solutions for interface movement, temperature drop and surface heat flux for a tube filled with a salt or metal phase change material and immersed in a working fluid environment or a cylindrical phase change material tube through which the working fluid circulates within an inner tube are derived by means of a perturbation analysis using the Stefan number as the perturbation parameter. It is found that the temperature drop across a given frozen layer increases as the Biot number increases, and heat extraction is more efficient at higher Biot numbers. Surface heat flux calculations indicate, however, that small values of the Biot number (less than 1) are more conducive to a steady rate of energy extraction.

A80-12756 # Review of thermal storage materials from the view point of solar energy application. P. C. Pande and H. P. Garg (Central Arid Zone Research Institute, Jodhpur, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 191-202, 29 refs.

The thermal energy storage and chemical storage of solar energy are reviewed for evaluating the feasibility of its practical utilization in the solar energy devices for agricultural use. Sensible heat and latent heat storage media are considered for high and low thermal storage, and performances of sensible and latent heat materials are compared by investigating their heat capacities, melting points, enthalpies of fusion, densities, stability, corrosion resistance, and thermal conductivities. The hydration-dehydration equilibria are discussed, and storage by inorganic oxide/hydroxide such as MgO/Mg(OH)2 and CaO/Ca(OH)2 is investigated.

A80-12757 # Electrochemical storage of photovoltaic solar energy. H. Saha (Chloride India, Ltd., Calcutta; Kalyani, University, Kalyani, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 209-217.

Characteristics of storage batteries for electrochemical storage of solar energy for a power system for terrestrial applications are reviewed. Various batteries which may be used, such as lithium-sulfur, sodium-sulfur, and zinc-chlorine types, are analyzed and a design procedure developed for the selection of the battery capacity for a given application. The lead-acid battery is the only one that meets the requirements of the Photovoltaic Electric Power System (PEPS) to obtain energy 'on demand'. Results of the field-trial of a solar power system using a lead-acid battery especially developed for this application are reported, and the potential applications of such a solar cell power system in India are reviewed.

A80-12758 # Testing of three installed solar domestic water heaters. B. Nimmo (University of Petroleum and Minerals, Dharan, Saudi Arabia), J. Pearce, and W. Clark (Florida Technological University, Orlando, Fla.). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 237-249. 11 refs.

A solar water heating program of testing three installed solar water heaters in Orlando, Fla. is presented. The testing procedure described was applied to the commercially installed units for one week, the results including useful energy provided, hot water load, insolation, collector efficiency, auxiliary energy, and percent of required energy provided by solar power. The importance of the control unit was emphasized in two tests by the fact that heat was occasionally lost to the surroundings from the collectors. Curves of collector efficiency are presented for two collectors, and in one case the present linear best fit curve is compared to the efficiency curve

for a similar collector obtained with NBS procedures. The efficiencies of the collectors are compared, ranging from 30.2 to 42.3%. A.T.

A80-12759 # Design of 1-ton solar operated LiBr-water air-conditioning system with special reference to solar part. H. K. Varma (Roorkee, University, Roorkee, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 325-330.

A80-12760 # Programme and progress of DST sponsored solar photovoltaic work in India. U. Venkateswarlu (Central Electronics, Ltd., Sahibabad, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 427-432.

A80-12761 # Role of oxide layer in Schottky barrier solar cells. N. K. Swami, S. Srivastava, and H. M. Ghule (Birla Institute of Technology and Science, Pilani, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 433-435. Research supported by the University Grants Commission.

A80-12762 # Development of space quality silicon solar cells at B.A.R.C. M. K. Gupta, Y. V. Oke, G. Chandran, and S. K. Gupta (Bhabha Atomic Research Centre, Reactor Control Div., Bombay, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 436-439.

The paper discusses the fabrication steps, performance and reliability tests, and future programs of space quality silicon solar cells. Solar cell characteristics for short circuit currents, open circuit voltage and efficiency are examined by plotting I-V characteristics using an X-Y recorder under a quartz-iodine lamp. Attention is given to diode characteristics, series resistance, radiation damage, contact adherence and antireflection coating.

C.F.W.

A80-12763 # A theoretical method for estimation of power loss due to mismatch in solar cell I-V characteristics. N. Srinivasamurthy, G. Malathi, and R. S. Mathur (Indian Space Research Organization Satellite Centre, Bangalore, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 440-444.

A theoretical approach is presented to compute the power loss of a parallel array connected set of solar cells. The equations for the current and voltage relation of a solar cell is derived, assuming the cell is made up of unit fragment cells. The calculations for a typical solar panel similar to the one that will be used in the Rohini Satellite-1 are also presented. It is concluded that with a power loss of less than 3%, the cell specified can be amply used for the solar panel without a significant overall power loss.

C.F.W.

A80-12764 # Effect of concentrated sunlight on the various parameters of the p-n junction solar cell. N. K. Swami and H. M. Ghule (Birla Institute of Technology and Science, Pilani, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 445-450. Research supported by the University Grants Commission.

A80-12765 # Cadmium telluride solar cells. V. K. Jain (Solid State Physics Laboratory, Delhi, India) and A. P. Kulshreshtha (Solid State Physics Laboratory, Delhi; Indian Space Research Organization Satellite Centre, Dept. of Space, Bangalore, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 451-461, 17 refs.

Fabrication techniques for CdTe homo- and heterojunction solar cells and modifications to improve their efficiency are presented. CdTe is suitable for solar cell fabrication since it has a direct band gap with a value appropriate for efficient solar energy conversion. Fabrication of CdTe solar cells using thin film deposition and their efficiency are discussed, noting effects of carrier concentration. A critical examination of homo- and heterojunction solar cells was made, but many of the new proposed structures cannot be used due to their high cost. A cost effective sintered pellet technique for CdTe solar cell fabrication was proposed whose efficiency may be slightly lower than that of single crystal solar cells; it produces a polycrystal-line CdS ingot, which is sliced for the deposition of p-type CdTe by screen printing process.

A80-12766 # Performance studies on uniform illumination type nontracking concentrators. A. Gupta, Mr. Murlidhar, S. Kumar, and V. K. Tewary (Birla Institute of Technology and Science, Pilani, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 462-466.

Experimental results are presented on uniform illumination-type nontracking concentrators. Three models were fabricated with half-acceptance angles of 6 and 11.5 deg, using plain and anodized aluminum sheets. Solar cell/photodiode units were used to determine the widthwise uniformity of the concentrators. Results show that uniformity of illumination is obtained within 10 to 12% variation at various times during the operating period.

B.J.

A80-12768 # Theoretical consideration of curve fill factor in solar cells. A. Subrahmanyam, K. K. Mahendra, and A. P. Kulshreshtha (Solid State Physics Laboratory, Delhi; Indian Space Research Organization Satellite Centre, Dept. of Space, Bangalore, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemi-

cals Research Institute, 1979, p. 474-477.

The paper examines theoretical considerations of curve fill factor (CFF) in solar cells. The CFF determines the quality of voltage-current characteristics and the 'figure of merit' of the solar cell, and it is defined as the ratio of the optimum power under matched load conditions to the product of the open circuit voltage and the short circuit current. It was shown that for a silicon solar cell the CFF tends to a maximum value of 0.85 and a minimum of 0.25, and it saturates at around 0.81. Similar calculations can be made for solar cells fabricated with semiconductors other than silicon, but to evaluate the ratio of the short circuit current to the reverse saturation current, parameters such as life time of minority carriers, band gap, absorption coefficient in different spectral regions, and temperature dependence of these parameters need be known. A.T.

A80-12769 # Experimental study of MOS solar cells under concentration. S. Kar, S. Bhattacharya, and S. Varma (Indian Institute of Technology, Kanpur, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 478-486.

The electrical characteristics of Schottky Barrier (SB) and MOS solar cells fabricated on n-type Si using Au and Ag as barrier metals were studied under various values of concentration. Current-voltage, diode current-voltage, and capacitance-voltage characteristics were measured, showing that SB and MOS cells perform equally well as

p-n junction solar cells under concentration. Therefore, use of non-tracking type concentrators will reduce the cost of photovoltaic power generation. The open-circuit voltage of these cells increases with concentration, but the increase is limited by a simultaneous rise in the interface state charge, requiring low interface state density cells for use under concentrated light. The fill factor degraded under concentration, but this can be reduced by a suitable design of the front grid contact.

A.T.

A80-12771 # Annealing and degradation studies of ceramic CdS solar cells. H. Saha (Chloride India, Ltd., Calcutta, India), K. Mukhopadhyay, S. Sengupta, and P. Basu (Kalyani, University, Kalyani, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 493-500. 6 refs.

Sintered Cu(x)S/CdS solar cells of about 4% efficiency are fabricated by a pressing, sintering and dipping technique. A detailed study of the effect of annealing CdS in different atmospheres (air, nitrogen, and vacuum) on cell performance is reported. The rates of degradation of these annealed cells, at different ambients including vacuum, are also investigated with a view to understanding the mechanism of their degradation. It is observed that in these ceramic cells the principal mechanism of degradation is copper diffusion, which is seen to be partially arrested by proper annealing and partially enhanced by indium diffusion. (Author)

A80-12772 # Effect of thin oxide layer on the current voltage relations of Schottky barrier solar cells. S. R. Dhariwal, S. B. Sharma (Government College, Ajmer, India), and P. K. Bhatnagar (Delhi, University, Delhi, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 501-505. 11 refs. Research supported by the University Grants Commission.

The discrepancy between the theoretical and experimentally observed optimum thicknesses of an oxide layer placed between the metal and the semiconductor in a Schottky barrier solar cell is explained in terms of the nonuniform deposition of the thin (10 to 30 A) oxide layer. The Poisson distribution is used to account for the average oxide layer thickness and an expression for the average tunneling thickness is derived which is different from the average oxide layer thickness due to the difference between the tunneling effective electron mass and the free electron mass. In the case of a Au-SiO2-nSi structure, it is shown that the tunneling effective thickness is always less than the average oxide thickness, and thus the theoretical prediction of 10 A as an optimum thickness is shown to correspond to the experimentally determined optimum at 20 A.

A.L.W.

A80-12773 # Techno-economic feasibility analysis of solar cells with and without concentrators for rural lighting. Mr. Mahabala, S. D. Gomkale, R. L. Datta, and K. S. Rao. In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 506-517.

A80-12774 # GaAs-electrolyte photovoltaic cells. U. Sengupta, H. N. Acharya, and D. N. Bose (Indian Institute of Technology, Kharagpur, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 518-520, 5 refs.

The performance of GaAs-electrolyte heterojunction photovoltaic cells is measured. Single crystal GaAs specimens in contact with various concentrations of NaOH electrolyte in an electrolytic cell using Pt as the counterelectrode were irradiated by a tungsten lamp. The I-V characteristics of the cell indicate the rectifying property of

the junction and a photocurrent in the reverse bias direction is observed. The C-V characteristics indicate the presence of a depletion layer at the surface of the n-type GaAs. An open-circuit voltage of 0.68 V and a short-circuit current density of 0.18 mA/sq cm at 50 mW/sq cm were obtained with 0.1 N NaOH, and power is found to increase with increasing electrolyte concentration. The spectral response to the cell is observed to exhibit a peak at 700 nm, corresponding to an energy of 1.77 eV. It is concluded that further theoretical and experimental investigation of the system is warranted.

A.L.W.

A80-12775 # Reliability studies on thin film solar cells for satellite application. N. R. Pillai, M. J. Nair, and M. K. Mukherjee (Indian Space Research Organization Space Centre, Trivandrum, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 521-527.

Studies of vacuum deposition of CdS thin films for use in solar cells for self-healing bulk satellite power-supply systems are discussed. Cell reliability is analyzed in terms of cell-material, substrate, and film reliability. It is shown that the thickness of CdS films has a pronounced effect on both the physical and electrical properties of solar cells, that typical CdS films consist of regions of varying porosity, and that the porosity may explain the necessity of attaining high film reliability in order to fabricate solar cells with an efficiency that is inversely proportional to the number of pores. The effect of such efficiency on overall performance, including the cost aspect of the power system, is considered. It is concluded that a negligible pore effect can be achieved by selecting optimum evaporation parameters for depositing fcc-type CdS thin films on highly reliable substrates.

A80-12776 # Experimental investigation of various parrier metals for Schottky barrier and MOS solar cells. S. Kar, S. Bhattacharya, D. Shanker, and S. Varma (Indian Institute of Technology, Kanpur, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 528-533, 8 refs.

The effect of barrier metals on the performance of Schottky Barrier (SB)/MOS solar cells was investigated. Au, Ag, and Cu were studied for n-type and Al, Cr, and Sn for p-type silicon. Au and Ag films have very high transmission, followed by Cu, Cr, Sn, and Al. A short-circuit current density of 39.5 mA/sq cm was measured in Ag cells, and 36.0 mA/sq cm in Au cells; an open-circuit voltage of 300 mV was obtained in Au cells, 260 mV in Ag cells, and 160 mV in Cu cells on n-type silicon. In comparison, the open-circuit voltage of Au, Ag, and Al MOS cells ranged between 400 and 498 mV with a 22 A thick oxide. The transmission coefficient T of the thin metal layer was a strong inverse function of the wavelength, but the rate of decrease of T with wavelength varied between metals.

A80-12777 # Review of the work done at C.E.E.R.I. on the development of single crystal silicon solar cells for use with concentrated light. B. R. Marathe, R. C. Dubey, A. R. Bardhan, H. S. Kothari, K. S. Yadav, V. Holla, N. N. Kundu, D. S. Rao, and S. Chandra (Central Electronics Engineering Research Institute, Pilani, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 534-538. 8 refs. Research sponsored by the Department of Science and Technology.

A80-12778 # Design and development of a 100 peak watt photovoltaic concentrator system. In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

India, Central Salt and Marine Chemicals Research Institute, 1979, p. 539-543. Research sponsored by the Department of Science and Technology.

Solar photovoltaic cells for concentrated sunlight are described, which were fabricated using quarters of 50-mm-diameter, p-type silicon single crystal wafers. A one-axis tracking system capable of giving 12 peak watts is analyzed from the point of view of developing larger systems. Consideration is given to a 100 peak watt, two-axes tracking system. Its design is based on the heliostatic structure. This system has the advantage of rotating and supporting the structure along the gravitational axis, which improves its stability.

V.T.

A80-12780 # Industrial applications of solar energy in India. B. C. Jain (Jyoti, Ltd., Baroda, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. (A80-12739 02-44) Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 588-594.

A80-12781 # Solar absorption spectra of PbS-Al and PbSe-Al systems. A. Chandra (Ministry of Communications, Betim, Goa, India), A. Varughese (Dhempe College of Arts and Science, Panaji, Goa, India), and A. S. Wagh (Bombay, University, Panaji, Goa, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 607-612. 6 refs.

A80-12782 # An electronic device for intermittent tracking.
J. T. Eapen (Institute of Science, Bombay, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 623-628.

Solar collectors must track the sun in order to obtain high efficiency. The paper describes a project intended to design and construct a simple electronic device for intermittent tracking of the sun. The design is based on a light-dependent resistor (LDR) which is the sensor used in the circuit. The LDR has high resistance in the dark, and the resistance decreases with the intensity of the light incident on it. The design and construction of a 'seek and hold' tracking system are described, along with the drive system, operation, and cloud interference control. The tracking system can provide diurnal tracking. The azimuthal tracking (seasonal adjustment) is done by manual adjustment as shown schematically. The device has been constructed and tested, showing that it is suitable for adjusting the solar collector.

A80-12783 # Study of photochemical processes in the ferrous-thionine system. P. N. Moorthy, S. N. Guha, and P. V. Kamat (Bhabha Atomic Research Centre, Bombay, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 629-637. 8 refs.

The photogalvanic effect in the ferrous thionine system is affected by a number of factors, including light intensity, type of dye, redox components, pH, presence of organic solvents, types of electrodes, and mechanical agitation of the system. This paper describes a photochemical study designed to examine such influences on the photogalvanic effect in ferrous thionine system. The study involved flash photolysis, kinetic spectrophotometry, spectrofluorimetry, and photoelectrochemical studies.

B.J.

A80-12784 # Solar concentrator with polyester film for reflecting surface and pendulum arrangement for tracking movement. C. R. Marathe (Indian Institute of Technology, Bombay, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 638-643.

A80-12785 # Effect of image force on the characteristics of MOS solar cell. P. K. Bhatnagar (Delhi, University, Delhi, India), S. R. Dhariwal, and S. B. Sharma (Government College, Ajmer, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemi-

cals Research Institute, 1979, p. 670-674. Research supported by the University Grants Commission.

The effect of image force on the carrier of a metal-oxide semiconductor solar cell is studied. The image force lowering of the barrier for different thickness of the oxide layer is calculated. Emphasis is placed on the effect of image force barrier lowering on the I/V characteristics, power, fill-factor, and open circuit voltage of a typical MOS Au-SiO2-nSi solar cell.

A80-12786 # Experimental investigations of an intermittent ammonia-water solar refrigerator. A. Venkatesh and M. C. Gupta (Indian Institute of Technology, Madras, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 675-684.

The paper discusses the experimental results of an intermittent ammonia-water solar refrigerator operating with a flat plate collector. Results obtained from experiments conducted in the initial concentration range of 0.5 to 0.65 are compared and discussed. Also, the effects of cooling load, rate of cooling of the absorber and the use of mirror boosters on the performance of the refrigerator are discussed. (Author)

A80-12787 # Performance characteristics of solar regenerators. P. Gandhidasan, V. Sriramulu, and M. C. Gupta (Indian Institute of Technology, Madras, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute, 1979, p. 685-690.

The paper deals with the use of solar energy for regenerating absorbent chemical solutions. A method is described where the absorbent solution is made to flow, in the form of a thin film, over a solar collector; the water evaporating from the surface is removed by streaming air. In the forced convection regenerator, the film and the airstream can move in the same direction and in opposed directions. The effectiveness of the equidirectional and counter-flow versions of the solar regenerator is evaluated. The case where the evaporating water is removed by wind gusts is examined.

A80-12788 # Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution. S. Deb, M. K. Mukherjee, K. Maitra, and D. Mukherjee (Jadavpur University, Calcutta, India). In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978.

Bhavnagar, India, Central Salt and Marine Chemi-

cals Research Institute, 1979, p. 691-696. 6 refs.

The paper reports a method of electrolytic deposition on ceramic Cu2S-CdS solar cells using junctions on vacuum-annealed ceramic CdS tablets formed by an auto-diffusion technique. The Bogus treatment (1973) consisting of deposition of a thin copper layer by a vacuum technique, followed by a heat treatment to increase the cell efficiency and improve the yield is described. Fabrication of sintered CdS cells and various electroplating conditions of Cu deposition from a CuSO4 solution are presented. It is suggested that this method improves the curve factor, the short-circuit current, and open circuit cell voltage, and points to the possibility of a simple and inexpensive method of accomplishing the key step in fabrication of Cu2S/CdS solar cells.

A80-12789 # Some experimental studies on the technical developments of low cost silicon solar cells. In: Solar energy for rural development; Proceedings of the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978. Bhavnagar, India, Central Salt and Marine Chemicals Research Institute,

1979, p. 709-715. Research sponsored by the Department of Science and Technology.

The development of low cost production techniques for contact metallization and anti-reflection coatings is assessed, and a comparative analysis of material cost for vacuum evaporated and screen printed contacts is made. Result of preliminary studies on screen printed contacts, spin-on anti-reflection layers and textured black cells showed that a major cost reduction is possible by employing the described low cost techniques. The results highlight the fact that the introduction of low cost techniques could not only increase the process throughput but also eliminate the use of expensive vacuum evaporation systems.

C.F.W.

A80-12815 Power loss in photovoltaic arrays due to mismatch in cell characteristics. L. L. Bucciarelli, Jr. (MIT, Cambridge, Mass.). Solar Energy, vol. 23, no. 4, 1979, p. 277-288. Research sponsored by the U.S. Department of Energy.

Variations in the current-voltage characteristics of photovoltaic cells can lead to significant power loss 'due to mismatch' when the cells are connected together in a network. This study explores how this mismatch loss depends on variations in max-power current and max-power voltage from cell to cell. An analysis of a series string is first performed. Losses in a parallel string are also determined. Estimates of mismatch losses in more complex arrays are then obtained. In addition to generally excellent comparison with several numerical studies, results show that, for a series string, there exists a critical magnitude of deviation in cell max-power current beyond which the power loss due to mismatch is sensitive to both the number of cells placed in series and the shape of the probability density function defining variations in max-power current. This critical level also depends on the cell fill-factor. (Author)

A80-12816 \* Optimization of multi-layer front-contact grid patterns for solar cells. A. Flat and A. G. Milnes (Carnegie-Mellon University, Pittsburgh, Pa.). Solar Energy, vol. 23, no. 4, 1979, p. 289-299. 12 refs. Grant No. NGR-39-087-021.

In a front-contact grid pattern for a solar cell there is a trade-off necessary between shadowing loss and excessive power loss due to voltage drop in the metalization itself. If the metalization is too little there may be excessive contact resistance to the underlying semiconductor and insufficient coverage to control losses in the thin front-surface layer of the solar cell. Optimization of grid pattern area and geometry is considered analytically to minimize total losses. Worthwhile performance advantages are shown to be possible, particularly in concentrator systems, if multi-layer grid patterns are used. The current carrying fingers should be approximately square in metal cross section and the main current feedout bars should not only be wider but also thicker than the primary collecting fingers. This is termed multi-level metalization. Effective use of multi-level grid metalization allows much greater concentration-to-loss ratio for a cell of large area and permits good performance from cells of high front-layer sheet resistance. (Author)

A80-12817 Calculation of monthly mean solar radiation for horizontal and inclined surfaces. J. E. Hay (British Columbia, University, Vancouver, Canada). Solar Energy, vol. 23, no. 4, 1979, p. 301-307. 41 refs. Research supported by the British Columbia Energy Commission.

A technique is presented for calculating monthly means of solar radiation for both horizontal and south-facing surfaces. The time scale used is daily totals, and the regression relationship which allows the horizontal surface radiation to be calculated using bright sunshine and surface albedo shows no significant variation between stations or seasons despite the use of data from maritime and continental midlatitude and subarctic locations. The technique presented can therefore be used to establish the long-term solar energy climatology, for both horizontal and south-facing inclined surfaces, over a large geographical area with a wide range of climatic conditions. It is shown that the theoretical and empirical equations normally used on all hourly time scale may be applied to daily data without any significant reduction in the accuracy of the calculated values.

S.D.

A80-12819 The turnover times and pool sizes of photosynthetic hydrogen production by green algae. E. Greenbaum (Union Carbide Corporate Research Laboratory, Tarrytown, N.Y.). Solar Energy, vol. 23, no. 4, 1979, p. 315-320. 26 refs. Research supported by the Union Carbide Corp.

An investigation of the turnover times of photobiological production of hydrogen gas by green algae indicate that the photoreactions associated with molecular hydrogen production have promising properties for solar energy conversion and storage. The results indicate that (a) the intrinsic kinetic rate capability of the hydrogen photoapparatus in green algae can keep pace with the incidence rate of light quanta, even in full sunlight; (b) the photogenerated electrons for hydrogen production probably lie in the mainstream of the electron transport chain of photosynthesis. These results have been obtained by performing the first measurements on the turnover times and pool sizes of photosynthetic hydrogen production. Rapid multiple flash experiments have been performed which indicate that the immediate source of reductant for photosynethetic hydrogen production is derived from a pool of 5-20 equivalents, depending on the alga. (Author)

A80-12820 Calculation of climatic solar heating performance. R. H. Bushnell. *Solar Energy*, vol. 23, no. 4, 1979, p. 321-325, 14 refs.

A climatic design method is presented which uses the long-term outdoor temperature distribution as well as utilizability of irradiation to find the solar fraction for building heat. The method considers a solar heater to be able, on the average, to supply all the heat needed by a building down to a cut-in temperature determined by the average amount of solar heat collected and the heat loss coefficient of the building. The amount of auxiliary heat needed is calculated from the kelvin day value below this cut-in temperature. The method permits the use of temperature distributions obtained from long records so that extremes can be represented. This allows calculations to be made near 100% solar heat. Any thermostat setting can be used. Several heat sources can be used. Examples are given. (Author)

A80-12821 Correspondence between solar load ratio method for passive water wall systems and f-Chart performance estimates. M. S. Drew and R. B. G. Selvage (S-Matrix Enterprises, Ltd., Richmond, British Columbia, Canada). Solar Energy, vol. 23, no. 4, 1979, p. 327-331. 5 refs. Research supported by the British Columbia Ministry of Education, Science and Technology.

A simple correspondence is demonstrated between passive solar system performance and active system f-Chart estimates. The equations describing a thermal network model of a passive water wall solar system are compared term by term with similar equations governing the heat balance in an active solar heating system, making possible an identification of appropriate passive system parameters with active system parameters comprising inputs to the f-Chart procedure. Comparisions of f-Chart predictions and results using the Solar Load Ratio method are made for sample cities in sixteen climatic zones. Results indicate a discrepancy of at most about 9 per cent solar fraction between the two methods in the cases studied.

(Author)

A80-12822 An experimental study of corrugated steel sheet solar water heater. S.-A. Wang (Shanghai Mechanical Engineering Institute, Shanghai, Communist China). Solar Energy, vol. 23, no. 4, 1979, p. 333-341. 16 refs.

The heat transfer process in a corrugated-steel-sheet solar water heater is analyzed, and an experimental procedure for deriving the collector efficiency equation is proposed. The calculated collector efficiency is greater than 0.94. The temperature is 7 C higher than the collector temperature.

A80-12823 An incongruent heat-of-fusion system - CaCl2-6H2O - made congruent through modification of the chemical composition of the system. B. Carlsson, H. Stymne, and G.

Wettermark (Kungl. Tekniska Hogskolan, Stockholm, Sweden). Solar Energy, vol. 23, no. 4, 1979, p. 343-350. 10 refs.

The paper describes a method of ensuring that calcium chloride tetrahydrate is not a stable species in a heat-of-fusion system by chemically modifying it. Thus, an addition of SrCl2-6H2O to a CaCl2-H2O system decreases the solubility of CaCl2-6H2O and increases that of CaCl2-6H2O; if the addition of SrCl2-6H2O is about 2%, the melting point maximum for CaCl2-6H2O coincides with the peritectic point for equilibrium between the hexahydrate, the tetrahydrate, and the solution. With technical grade materials, tetrahydrate is a more severe problem as they contain impurities which have an opposite effect on the CaCl2 hydrate solubilities to that of SrCl2-6H2O. Addition of Ca(OH)2 suppresses tetrahydrate formation in some cases by neutralizing the excess of the chloride impurity and through formation of the CaCl2-CaO-2H2O phase.

A.T.

A80-12824 Truncation of nonimaging cusp concentrators. W. R. McIntire (Argonne National Laboratory, Argonne, III.). Solar Energy, vol. 23, no. 4, 1979, p. 351-355. 5 refs. Contract No. W-7409-eng-36.

Truncation of nonimaging cusp reflectors which concentrate sunlight onto cylindrical receivers leads to collector designs which are more cost effective through substantial reductions in mirror height and length with small reductions in concentration ratios. In this paper, reflector shapes for truncated nonimaging cusp concentrators having various acceptance angles are presented, as well as curves for height/aperture and mirror arc length/aperture ratios versus concentration ratio. In addition to their general utility in concentrator design, the latter curves have special significance for thermoformed plastic reflector substrates. The reflector height/aperture ratio is the 'draw', and the reflector arc length/aperture ratio is the 'stretch' to which the material is subjected during forming. With this information, important considerations in plastics fabrication can be addressed easily in the early design stages. (Author)

A80-12825 The analysis and simulation of an open cycle absorption refrigeration system. R. K. Collier (California, University, Los Alamos, N. Mex.). *Solar Energy*, vol. 23, no. 4, 1979, p. 357-366. 10 refs. Research sponsored by the U.S. Department of Energy.

An open cycle absorption refrigeration system is simulated and analyzed. The open cycle differs from the closed cycle in that the open cycle regenerates the weak absorbent solution by evaporating refrigerant to the earth's atmosphere rather than to a condenser. The solar collector used for the open cycle is one in which the weak absorbent solution flows as a fluid film over a flat, open, black surface. The absorbent solution is heated by the black surface and is regenerated by water evaporating to the atmosphere. It was found that the relationship between the collector length and the solution mass flow rate was tied to environmental factors such as wind and humidity when optimizing system performance. The system performance was simulated for five cities using actual weather data. The overall daily cooling COP's (cooling/incident solar) ranged from 0.09 to 0.45 for various conditions.

A80-12835 The scope of effective medium theory for fine metal particle solar absorbers. G. B. Smith (Houston, University, Houston, Tex.; New South Wales Institute of Technology, Broadway, Australia). Applied Physics Letters, vol. 35, Nov. 1, 1979, p. 668-670. 12 refs. Research supported by the U.S. Department of Energy and University of Houston.

The treatment of an array of small metal particles as a continuous effective medium is shown to be possible for visible and near-infrared frequencies at much larger particle sizes and separations than often supposed. Specific upper limits are evaluated for chromium. Results are based on the strongly correlated model. For this, the usual topology, variation, and attenuation of the field strength over average unit cell dimensions are permissible, provided such variations are characteristic of the effective medium as a whole. As wavelength decreases, the leading contribution to diffuse scat-

tering off such composite films should come from terms proportional to lambda to the -8th power not the Rayleigh term. (Author)

A80-12838 Efficiency of quantum-utilizing solar energy converters in the absence of intraband thermalization. R. T. Ross (Ohio State University, Columbus, Ohio). *Applied Physics Letters*, vol. 35, Nov. 1, 1979, p. 707, 708. 5 refs. Research supported by the U.S. Department of Energy; NSF Grant No. PCM-76-11655.

In some photoelectrical and photochemical devices, energy conversion may occur before thermal equilibrium within the electronic bands of the absorber. A statistical thermodynamic argument shows that such hot-transfer devices cannot have an efficiency greater than that of an ideal device in which thermalization precedes energy conversion. (Author)

A80-12853 A 30-ps Josephson current injection logic /CIL/. T. R. Gheewala (IBM Thomas J. Watson Research Center, Yorktown Heights, N.Y.). *IEEE Journal of Solid-State Circuits*, vol. SC-14, Oct. 1979, p. 787-793. 21 refs.

A family of novel Josephson logic circuits called current injection logic (CIL) is presented. In contrast to previous approaches, it combines magnetically coupled interferometers with novel nonlinear injection gates to obtain ultra-fast logic speeds, wide margins, and greater fan-in and fan-out capabilities. Fastest logic delay of 30 ps/gate is measured averaged over two- and four-input OR and AND gates (average fan-in = 4.5, average fan-out = 2.5) fabricated using 2.5 micron nominal design rules. The average power dissipation of these experimental circuits is 6 micron W/gate. An unprecedented logic delay of 13 ps/stage is measured on a chain of two-input OR gates, and the logic delay for a circuit consisting of two two-input OR gates, the outputs of which are 'AND'ed, is measured at 26 ps. The experimental results are found to be in excellent agreement with delay estimates based upon computer simulations. (Author)

A80-12883 # Laser fusion - Energy application perspectives (Lazernyi termoiadernyi sintez - Perspektivy energeticheskikh primenenii). A. V. Kalinin. Akademiia Nauk SSSR, Izvestiia, Energetika i Transport, Sept.-Oct. 1979, p. 16-23. 12 refs. In Russian.

The paper presents a brief comparative investigation of different conceptual laser fusion systems. These include: (1) 'pure' laser fusion power plants; (2) hybrid (fusion-fission) plants; (3) laser fusion breeder reactors; and (4) laser fusion devices for the production of nonnuclear fuels. The basic characteristics of these systems are examined.

A80-12896 # Calculation of the low-frequency electromagnetic field of MHD machines encapsulated in a common screening shell (Raschet nizkochastotnogo elektromagnitnogo polia MGD-mashin v obshchei ekraniruiushchei obolochke). S. M. Apollonskii. Magnitnaia Gidrodinamika, July-Sept. 1979, p. 83-86. 5 refs. In Russian.

The paper develops a method for calculating the electromagnetic fields of two or more MHD machines encapsulated in a common housing, with consideration of the mutual field interaction. Some results are presented on the field interaction of two MHD pumps in a common housing, taking into account ferromagnetic and screening effects.

B.J.

A80-12897 # Simultaneous investigation of transverse and longitudinal edge effects in the channel of a plane MHD induction pump (Ob odnovremennom uchete poperechnogo i prodol'nogo kraevykh effektov v kanale ploskogo induktsionnogo MGD-nasosa).

L. M. Dronnik, S. Iu. Reutskii, and A. I. El'kin. Magnitnaia Gidrodinamika, July-Sept. 1979, p. 87-93. 10 refs. In Russian.

The paper proposes a mathematical model of a plane MHD induction pump that makes it possible to investigate simultaneously longitudinal and transverse edge effects on flow parameters in the channel. An analytical solution is obtained for steady laminar flow in a channel with insulation barriers at the inlet and outlet. It is found that the longitudinal edge effect affects velocity in the central part of the channel, but has no influence on reverse flow at the walls.

A80-12898 # Conduction-type MHD generator with backand-forth motion of the hybrid working material (Konduktsionnyi MGD-generator s vozvratno-postupatel'nym dvizheniem kombinirovannogo rabochego tela). S. E. Kuznetsov and V. I. Andreev. Magnitnaia Gidrodinamika, July-Sept. 1979, p. 97-104. 5 refs. In Russian.

A conduction-type MHD generator with a hybrid working material, liquid metal and a solid conductor (a metallic plate), has been designed in an effort to reduce the total internal resistance of the system. The operating characteristics of an MHD generator with back-and-forth motion of a working material consisting of mercury and a copper plate are analyzed.

B.J.

A80-12900 # Determination of the geometry of the transition region of a series MHD generator (Opredelenie geometrii perekhodnogo uchastka seriesnogo MGD-generatora). G. P. Bazarov, E. N. Kufa, and S. A. Medin. *Magnitnaia Gidrodinamika*, July-Sept. 1979, p. 140-142. In Russian.

The paper considers the characteristics of the series channels of a MHD generator for a wide range of loads with zero field strength at connections between channels. Particular attention is given to the effects of the geometry of transition regions between channels on the power output characteristics of the generator.

B.J.

A80-12940 # Progress in R and D on coal liquefaction - Progress in research-development on coal liquefaction. S. Hulisz. U.N. Economic Commission for Europe, Symposium on the Gasification and Liquefaction of Coal, Katowice, Poland, Apr. 23-27, 1979, Paper. 24 p. 25 refs.

The predictions which may be drawn from the present report indicate that at the turn of this century the production and utilization of petroleum will decrease progressively, whereas coal, the major deposits of which are located in the industrialized portions of the world, will progressively increase in importance as an energy source and as a source of chemical raw materials. Some advantages of the utilization of low-sulfuric oil from coal are noted.

V.P.

A80-12941 # The role of coal gasification and liquefaction in improving the efficiency of energy use - Comparative end use efficiency of the use of coal: Substitute natural gas and other gases versus electric power production. H.-D. Schilling. U.N. Economic Commission for Europe, Symposium on the Gasification and Liquefaction of Coal, Katowice, Poland, Apr. 23-27, 1979, Paper. 13 p.

A80-12942 # Environmental protection in the processing of coal - The utilization or disposal of coal processing residues. J. S. Harrison. U.N. Economic Commission for Europe, Symposium on the Gasification and Liquefaction of Coal, Katowice, Poland, Apr. 23-27, 1979, Paper. 14 p. 54 refs.

All coal processing operations produce residues, either carbonaceous or inorganic. The present paper deals with the problem of finding means of using the residues profitably to help processing economics. The case where processing cost will be increased by the necessity of disposing residues in an environmentally acceptable fashion is also examined.

A80-12943 # Environmental protection in the processing of coal. J. Nemec. U.N. Economic Commission for Europe, Symposium on the Gasification and Liquefaction of Coal, Katowice, Poland, Apr. 23-27, 1979, Paper. 8 p. Translation.

The present report deals with some aspects of air pollution associated with the development of coal gasification and liquefaction techniques. It is based on published data and on experience in the operation of pressurized gasworks in Czechoslovakia. It is shown that the concentration of such harmful substances as dust, fumes, and gaseous emissions (sulfur oxides, carbon, nitrogen, sulfur compounds, arsenic, hydrogen chloride, etc.) emitted in the atmosphere depend on the brand of coal, the conversion technology employed,

the degree of equipment sophistication, and adherence to technological specifications. V.P.

A80-12944 # Coal as a source of chemical raw materials - Prospects for chemical synthesis based on gas from coal. H. Teggers. U.N. Economic Commission for Europe, Symposium on the Gasification and Liquefaction of Coal, Katowice, Poland, Apr. 23-27, 1979, Paper. 20 p. 13 refs.

The requirements placed on coal gasification processes suitable for synthesis gas production are reviewed. The Lurgi, Winkler, Koppers-Totzek processes are outlined, and some recently proposed improvements to these processes are noted. The thermal efficiency of each step of methanol production by coal gasification (by the Lurgi process) is studied with a view toward the cost-optimization of the methanol production process.

V.P.

A80-12945 # Progress and development trends in coal gasification and liquefaction technologies. A. A. Krichko. U.N. Economic Commission for Europe, Symposium on the Gasification and Liquefaction of Coal, Katowice, Poland, Apr. 23-27, 1979, Paper. 42 p. Translation.

In the present paper, methods of converting coal into combustible gases are reviewed with particular reference to the Lurgi process, the Winkler process, and the Koppers-Totzek process. Thermodynamic analysis of the reactions which occur in the reduction zone indicates that by conducting the process of CO2 and H2O reduction under equilibrium conditions, the gasification process can be considerably intensified and gas generator capacity can be drastically increased. The mechanisms and kinetics of the principal reactions between carbon and gases are examined.

A80-12946 # Progress and development trends in coal gasification and liquefaction technologies - New gasification methods developed on a laboratory or large scale. G. Fumich. U.N. Economic Commission for Europe, Symposium on the Gasification and Liquefaction of Coal, Katowice, Poland, Apr. 23-27, 1979, Paper. 10 p.

New large-scale and laboratory coal gasification methods are examined. The three stages in gasifier developments, the Lurgi fixed bed reactor, the second generation reactor split into separate sections making it possible to optimize each section, and the third generation hydropyrolysis reactor which reacts the coal with pure hydrogen to produce only methane are described. The review of the evolution of gasifier and gasification process is made considering electrofluid reactors, fluidization, slagging, hydrogasification, and the flash hydropyrolysis catalytic method. Fluidization provides good gassolids contracting, heat transfer, and uniform temperatures; slagging gasifiers are suitable for a wide range of products from synthesis gas to processing coal liquefaction residues; and flash hydropyrolysis gasifier features effective single-element injector scaling and a minimization of the H2/coal ratio.

A80-12947 # Progress and development trends in coal gasification and liquefaction technologies - Recent achievements in conventional coal gasification processes. H. J. F. Stroud. U.N. Economic Commission for Europe, Symposium on the Gasification and Liquefaction of Coal, Katowice, Poland, Apr. 23-27, 1979, Paper. 18 p. 13 refs.

In the present report, some recent developments in the technology of coal gasification, using conventional processes, or a modern variant developed directly from them, are reviewed. Particular attention is given to fixed-bed gasifiers, the Lurgi process, and to advances made in Czechoslovakia and India.

A80-12948 # Progress and development trends in coal gasification and liquefaction technologies - Underground coal gasification.

P. Ledent. U.N. Economic Commission for Europe, Symposium on the Gasification and Liquefaction of Coal, Katowice, Poland, Apr. 23-27, 1979, Paper. 17 p. 26 refs. Translation.

Development trends in underground coal gasification are presented. Current methods being tested including the percolation

method for horizontal deposits and drilling in steeply inclined seams are described; technical problems of lining between bore-holes, ground subsidence, and water intrusions are considered. Improved control of the advance of the gasification front by use of high pressure air and gasification of deep deposits by compressed air pressure are discussed, noting that operation at great depth has advantages of absence of air leakages and of not interfering with surface aquifers. Economic studies made in U.K., U.S., and Belgium are presented, concluding that this method may produce large amounts of energy at competitive prices and provide lean gas for power stations, synthesis gas for chemical plants, and replace natural gas in distribution networks.

A.T.

A80-12964 Laboratory evaluation of two laser fluorosensor systems. G. A. Capelle and L. A. Franks (EG & G Corp., Advanced Measurements Group, Goleta, Calif.). Applied Optics, vol. 18, Nov. 1, 1979, p. 3579-3586. 11 refs. Research sponsored by the U.S. Department of Energy.

The characteristics and capabilities of two laboratory versions of a fluorosensor system built around N2 and KrF lasers are compared. Both systems were tested to determine the feasibility of remotely detecting the fluorescent emission of organic effluents associated with coal processing. System performance was measured under daylight and nighttime conditions for both actual effluents and known reference solutions and is predicted for an airborne system. Experiments on a multichannel system are also described. (Author)

A80-13003 Development of a sodium/sulphur battery for rail applications. M. D. Hames and J. L. Sudworth (British Railways, Technical Centre, Derby, England). *Institution of Electrical Engineers, Proceedings*, vol. 126, Nov. 1979, p. 1157-1161. 12 refs. Research supported by the Department of Transport/Department of the Environment.

The energy and power requirements of sodium/sulphur batteries to meet three different rail-traction applications are considered. Cell design options to meet these requirements are discussed briefly, and it can be shown that the central-sulphur tube-cell design can meet the requirements of the three rail-traction applications. The design features of a central-sulphur cell design are discussed and data are presented to indicate the state of cell development in terms of cell performance, reliability reproducibility and safety. The electrical properties of cells connected in series/parallel arrays for battery operation are discussed, together with battery thermal management and safety. A practical 10KWh battery comprising 176 cells connected as two 11 x 8 series-parallel arrays has been tested, and problems which can arise from overdischarge, thermal management and electrical short circuits are discussed. (Author)

A80-13004 Wind energy conversion system with electromagnetic stabiliser. M. Kant, M. Berna (Compiègne, Université de Technologie, Compiègne, France), and E. Vidoni (Paris, Laboratoire de Génie Electrique, Fontenay-aux-Roses, Hauts-de-Seine, France). Institution of Electrical Engineers, Proceedings, vol. 126, Nov. 1979, p. 1201-1203.

Development of a wind-energy conversion system unit, consisting of a constant-pitch double-blade rigid rotor, electromagnetic brake, and two-stage generator, is considered. The first-stage output is used to actuate the brake, and the second stage produces electric power for utilities. Three types of bipolar machines were studied: (1) an armature-semiexcited dc generator, (2) a double-winding dc generator, and (3) a three-phase asynchronous ac generator with an asymmetric secondary. It is noted that such systems eliminate variable-pitch equipment, simplify output voltage control, and can be completed by incorporating an anemometer and gearbox.

A80-13011 A pistonless Stirling engine - The traveling wave heat engine. P. H. Ceperley (George Mason University, Fairfax, Va.). Acoustical Society of America, Journal, vol. 66, Nov. 1979, p. 1508-1513. 9 refs.

The propagation of acoustical waves through a differentially heated regenerator results in gas in the regenerator undergoing a Stirling thermodynamic cycle. One direction of wave propagation results in amplification of the waves and conversion of thermal energy into acoustical energy. The opposite direction results in acoustical energy being used to pump heat. The ideal gain and maximum energy conversion rates are derived in this paper. Low power gain measurements were made which verify the derived gain equation. Practical engines and heat pumps using this principle are discussed. (Author)

A80-13024 # The possibilities of increasing gas turbine efficiency (Die Möglichkeiten zur Verbesserung des Wirkungsgrades der Gasturbinen). F. Toth. *Acta Technica*, vol. 87, no. 3-4, 1978, p. 347-354. In German.

The most efficient cycle for a gas turbine, under conditions when all efficiency parameters are uniform, is determined. It turns out to be the open cycle consisting successively of adiabatic compression, heat uptake at a constant volume, and adiabatic expansion. An attempt is made to determine which of the existing heat engines could best approximate this maximum efficiency cycle, and what sort of gas turbine might enable a more efficient cycle. B.J.

A80-13109 Hydrogen evolution from water using solid carbon and light energy. T. Kawai and T. Sakata (Institute for Molecular Science, Okazaki, Japan). *Nature*, vol. 282, Nov. 15, 1979, p. 283, 284. 6 refs.

Hydrogen production in the light-mediated decomposition of water vapor in the presence of solid carbon is reported. Three mg of active carbon, together with 30 mg of TiO2 and 10 mg of RuO2 powder were illuminated in the presence of water vapor by a 500-W mercury lamp. Mass spectrometer analysis of the gas evolved reveals the production a nonflammable mixture of H2, CO2 and CO in the presence of the TiO2/RuO2 catalyst. Experiments with a regenerative TiO2/metal oxide catalyst at 80 C resulted in a greater yield of CO and CO2 than at 60 C, indicating the usefulness of a combination of solar light and thermal energy. The decomposition of water by solar energy in the presence of carbon is suggested as a means of coal gasification and hydrogen production.

A80-13116 \* # Aeroelastic stability and response of horizontal axis wind turbine blades. S. B. R. Kottapalli, P. P. Friedmann (California, University, Los Angeles, Calif.), and A. Rosen (Technion - Israel Institute of Technology, Haifa, Israel). AIAA Journal, vol. 17, Dec. 1979, p. 1381-1389. 29 refs. Grant No. NsG-3082.

Coupled flap-lag-torsion equations of motion of an isolated horizontal axis wind turbine (HAWT) blade have been formulated. The analysis neglects blade-tower coupling. The final nonlinear equations have periodic coefficients. A new and convenient method of generating an appropriate time-dependent equilibrium position, required for the stability analysis, has been implemented and found to be computationally efficient. Steady-state response and stability boundaries for an existing (typical) HAWT blade are presented. Such stability boundaries have never been published in the literature. The results show that the isolated blade under study is basically stable. The tower shadow (wake) has a considerable effect on the out-of-plane response but leaves blade stability unchanged. Nonlinear terms can significantly affect linearized stability boundaries; however, they have a negligible effect on response, thus implying that a time-dependent equilibrium position (or steady-state response). based completely on the linear system, is appropriate for the type of HAWT blades under study.

A80-13174 The financing problems of Europe's gas industry (Les problèmes de financement de l'industrie gazière européenne). F. Gläser (Rheinische Energie AG, Cologne, West Germany). Revue de l'Energie, vol. 30, Oct. 1979, p. 828-831. In French.

This article aims to draw attention to several important points concerning the development of Europe's gas industry. It especially

aims at examining this problem from the financial angle, that is in relation to the money markets of the various countries. The problem is to determine whether certain factors in the money markets could constitute great obstacles for the development of Europe's gas industry.

(Author)

A80-13175 The European economic community's policy concerning natural gas, coal and new sources of energy (La politique de la communauté économique européenne en matière de gas naturel, de charbon et d'énergies nouvelles). I. Weiss and R. Constans. Revue de l'Energie, vol. 30, Oct. 1979, p. 837-843. In French.

This article is a history of the European Community's policy concerning energy. It retraces the birth of cooperation between member-states concerning natural gas, coal and new forms of energy. Concerning natural gas, the author concludes by noting that it is a flexible and nonpolliuting energy and has obvious safety advantages. Concerning coal, following a temporary reduction in use, it will most probably once again become one of the main bases of world and European industry. New energies only seem to have a minor impact on the total of energy used by the member-states in a projection to 1990, but these new energies are likely to open promising perspectives for the beginning of the 21st Century. (Author)

A80-13180 SSPS project - Two solar power plants in Spain (Projekt SSPS - Zwei Sonnenkraftwerke in Spainen). H. Ellgering (Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt, Bereich für Projektträgerschaften, Cologne, West Germany). DFVLR-Nachrichten, Nov. 1979, p. 15-17. In German.

The paper surveys the layout of the planned small solar power systems to be built by the IEA near the Costa del Sol in Spain. When completed the project will supply electrical power to the Spanish power grid, although the main purpose is to gain experience in the construction, design, and operation of solar power plants. The systems proposed will operate on the same principle in which solar heat is transferred to a heat transfer medium such as steam, gas, oil, or sodium. Two arrangements are discussed: the solar tower type and the solar farm type. The latter will utilize collectors of which one type will be adjustable only in elevation and the other in elevation and azimuth. It is concluded that if solar power plants are to be cost effective when fossil fuelled plants no longer are, then development work must begin now.

A80-13195 The R&D programme of the European communities in the field of hydrogen - Progress and results. G. Imarisio (Commission of the European Communities, Brussels, Belgium). International Journal of Hydrogen Energy, vol. 4, no. 5, 1979, p. 371-375. 9 refs.

A80-13196 Water splitting reaction on a polynaphthoquinone catalyst - A polynaphthoquinone-So2-12 system for H2O decomposition. Y. Iwasawa, T. Takeo, and S. Ogasawara (Yokohama National University, Yokohama, Japan). *International Journal of Hydrogen Energy*, vol. 4, no. 5, 1979, p. 377-384. 13 refs.

A80-13197 Microbial hydrogen production from replenishable resources, J. E. Zajic, A. Margaritis, and J. D. Brosseau (Western Ontario, University, London, Canada). *International Journal of Hydrogen Energy*, vol. 4, no. 5, 1979, p. 385-402. 104 refs.

Fossil fuels such as oil, natural gas and coal represent nonreplenishable natural sources and their cost is rapidly escalating as the world energy demand keeps increasing due to population growth and technological development. Hydrogen is an important alternative fuel source which represents a highly efficient energy carrier, and compares favorably with other fuels available today. The paper reviews microbial energy production, microbial oxidation, microbial production of hydrogen, effect of nitrogenase on hydrogen synthesis, and photosynthetic bacteria. Hydrogen produced by a wide variety of microbial systems can be developed into an important alternative energy and chemical resource. Carbohydrates, such as cellulose and

starches, represent an enormous reservoir of replenishable raw materials which have the potential of being converted biochemically to hydrogen gas and other valuable intermediates by a wide variety of microorganisms.

S.D.

A80-13198 Photophysical and chemical processes affecting the stability of the thiazine dye-iron system. S. Solar and N. Getoff (Wien, Universität, Vienna, Austria). International Journal of Hydrogen Energy, vol. 4, no. 5, 1979, p. 403-410. 21 refs. Research supported by the Osterreichischer Fonds zur Förderung der wissenschaftlichen Forschung, Bundesministerium für Wissenschaft und Forschung, and Ludwig Boltzmann Gesellschaft.

Photoelectrochemical devices can be used to produce hydrogen under suitable conditions. Although the thiazine dye-iron system has been widely investigated since its introduction by Rabinowitch (1940) as a photogalvanic cell, its application for utilization of solar energy on a large scale is not realized as yet. The paper discusses some of the photophysical and chemical processes which affect the instability of this system. Various experimental techniques are employed to elucidate the reasons for the instability of the thiazine dye-iron system. Conditions under which hydrogen is formed are established. Based on the hydrogen yield, it is possible to calculate the total quantum yield of the energy transfer process. Pulse radiolysis experiments show that the H atoms can attack the dye molecule at various positions, with definite rate constants. The results indicate that the formation of H atoms as a result of a specified reaction and their further reactions with the dye limit the chemical stability of the thiazine dye-iron system.

A80-13199 Hydrogen-powered vs. battery-powered automobiles. J. J. Donnelly, Jr., W. C. Greayer, R. J. Nichols (Aerospace Corp., El Segundo, Calif.), W. J. D. Escher (Escher Technology Associates, St. Johns, Mich.), and E. E. Ecklund (U.S. Department of Energy, Washington, D.C.). International Journal of Hydrogen Energy, vol. 4, no. 5, 1979, p. 411-443. 33 refs.

Two future candidate automobile propulsion systems which do not rely upon petroleum or natural gas as an energy source have been studied and the resultant vehicle characteristics identified. The first vehicle system employs a gaseous hydrogen-fueled internal combustion engine (ICE) and either a liquid or metal hydride energy storage system. The second vehicle system employs an electronically controlled electric motor power-train and a battery energy storage system. Major tasks included in this study were the technical and economic assessments of the state of the art and future alternatives in hydrogen production and delivery, the hydrogen vehicle assessment, the battery-electric vehicle assessment and the comparison of the principal vehicle alternative in 1985, 1990 and 2000. The comparison includes weight, size, cost, energy and design range relationships and the implications on expenditure of all major energy sources. The study is summarized, results presented and conclusions drawn. Comments are made on the future roles of hydrogen and electricity in automobile propulsion. (Author)

A80-13200 Thermodynamic and structural properties of LaNi/5-y/Aly compounds and their related hydrides. H. Diaz, A. Percheron-Guégan, J. C. Achard (CNRS, Meudon, Hauts-de-Seine, France), C. Chatillon, and J. C. Mathieu (Grenoble, Ecole Nationale Supérieure d'Electrochimie et d'Electrométallurgie, Saint-Martin-d'Hères, Isère, France). International Journal of Hydrogen Energy, vol. 4, no. 5, 1979, p. 445-454. 25 refs.

Hydrogen is known to react reversibly with intermetallic LaNi5 type compounds to give hydrides in such temperature, pressure, and kinetics conditions that they are considered very suitable for hydrogen storage either in a solid-gas reaction or in an electrochemical reaction. The paper is concerned with replacing a fraction of nickel by aluminum in LaN(5-y)Aly compounds, with y increasing from 0 to 1.5 by 0.25 intervals. Al is chosen because it is cheaper and lighter than Ni and has properties very different from those of a transition metal, namely larger atomic radius, valence plus 3 and hydrogen affinity; this can lead to interesting changes in the structural and thermodynamic properties. Results are presented on

the metallurgical, structural and thermodynamic properties of LaNi(5-y)Aly compounds and their related hydrides. Attention is given to an experimental determination of the enthalpies of formation of LaNi5 and LaNi4Al compounds. Correlations are established between structural and thermodynamic properties of intermetallic compounds of the series considered and their related hydrides.

A80-13204 Copper diffusion and photovoltaic mechanisms at Cu-CdS contact. B. Lepley, P. H. Nguyen, C. Boutrit, and S. Ravelet (Nancy, Institut des Sciences de l'Ingénieur, Vandoeuvreles-Nancy, Meurthe-et-Moselle, France). *Journal of Physics D - Applied Physics*, vol. 12, Nov. 14, 1979, p. 1917-1928. 21 refs.

Schottky barriers have been formed by vacuum evaporation of Cu on to CdS thin films. The behavior of these samples has been investigated as a function of time and annealing by standard electrical methods: current-voltage analysis, capacitance-voltage analysis and analysis of the spectral dependence of the photo-emission current. The impurity profile deduced from the reverse differential capacitance shows evidence of copper diffusion occurring between 20 and 200 C. An activation energy of 0.72 eV is found for the temperature dependence of the diffusion coefficient. The Cu-CdS interface has also been investigated by looking at the photovoltaic mechanisms in connection with the different heat treatments. Capacitance measurements performed under junction illumination have been used to obtain the true donor density after copper diffusion. (Author)

A80-13211 Autonomous power supplies for telecommunications (Sources d'énergie autonomes pour télécommunications). J. Auzilleau. *L'Onde Electrique*, vol. 59, Oct. 1979, p. 79-83. In French.

The operational principles of autonomous power supplies for telecommunications equipment, particularly radio relay stations, are considered, and the experimental solar- and wind-powered Aerosolec station is presented. Highly reliable, permanent telecommunications power supplies, often located in remote regions, are described as consisting of one or a number of types of energy sources connected in parallel, complemented by normal and emergency batteries. Aerosolec is composed of a 1100-W solar generator, a 300-W wind generator and normal and emergency batteries ensuring 12-day autonomy in the absence of sun and wind, delivering a permanent power of 180 W. Comparisons of investments costs per watt and per kWh over a 20-year period are presented which indicate the lower cost of wind-power technology. It is concluded that autonomous power supplies in telecommunications represent an advantage, especially in light of future utility limitations. A.L.W.

A80-13223 \* Fuel cell sesquicentennial. E. M. Cohn (NASA; U.S. Army, Army Research Office, Washington, D.C.). *Energy*, vol. 4, Fall 1979, p. 13, 30.

The development of fuel cell technology is summarized, and the potential for utility-type fuel cell installations is assessed on the occasion of the 150th anniversary of the construction of the first fuel cell by Sir William Grove. The only functional fuel-cell systems developed to date, the hydrogen-oxygen cells used by NASA, are indicated, and hydrazine and alcohol (methanol) cells are considered. Areas requiring development before the implementation of fuel cells as general purpose utility-type electric generators include catalysts for naturally occurring hydrocarbons or processes for low-cost methanol or hydrazine production, efficient means of scrubbing and enriching air, self-regulating systems, and 15- to 20-fold power density increases. It is argued that although ideas for eliminating certain of the above-mentioned problems have been proposed, fuel-cell systems can never be expected to equal the efficiency, reliability and low cost of conventional power plants, and thus A.L.W. developmental support should be discontinued.

A80-13224 Methanol from coal - An adaption from the past. E. E. Bailey (Davy McKee Corp., Cleveland, Ohio). *Energy*, vol. 4, Fall 1979, p. 19, 20.

The production of methanol from coal using existing commercially available processing technology is examined for the example of a self-contained plant importing only coal, water and a small amount of power and located adjacent to a Wyoming mine site. Coal from the mine is crushed and dried to 8% moisture, then sent to a fluidized bed gasifier which produces H2, CO; CO2, methane and inert material from subbituminous coal. The hot gas is treated to ensure the proper H2 to CO ratio and remove sulfur and excess CO2, and is compressed in a methanol synthesis loop in order to produce a total of 7050 tons/day of methanol and 35 liquid tons/day of byproduct sulfur. The overall plant thermal efficiency is 46.5 %, and graphs of the cost of methanol as a function of the cost of coal are presented which indicate the greater sensitivity of methanol prices to capital costs than to plant efficiency.

A80-13225 Gasoline's alternatives are feasible. J. T. Miskell. *Energy*, vol. 4, Fall 1979, p. 22-24.

Various alternatives to petroleum-derived gasoline for use as automobile fuels are discussed. Results of a recent American Gas Association study which indicate substantial cost savings (with costs comparable to gasoline) to be obtained with coal-derived methane gas as compared with synthetic gasoline derived from coal or shale oil or with electricity are presented. The major features of gasoline, natural gas and electric automobiles are compared, noting similarities between gasoline and natural gas vehicles, and hydrocarbon and sulfur oxide emissions in fuel processing and utilization are compared for electric, coal gas, coal gasoline, shale oil gasoline, natural gas and conventional gasoline vehicles. Limitations on the use of methanefuelled vehicles, including current conversion costs and the lack of a fuel distribution system, are indicated.

A.L.W.

A80-13342 Review of tokamak experiments. R. J. Bickerton (EURATOM and Atomic Energy Research Establishment, Culham Laboratory, Abingdon, Oxon, England). In: Theory of magnetically confined plasmas; Proceedings of the Course, Varenna, Italy, September 1-10, 1977. Oxford, Pergamon Press, Ltd., 1979, p. 423-491. 35 refs.

A brief description of the history and evolution of the tokamak is followed by a review of the results of tokamak experiments. The topics covered include plasma measurements, coarse confinement and scaling, plasma equilibrium fluctuations in tokamak plasmas, impurities, recycling, plasma/wall interactions, tokamak modes of operation, energy balance, and auxialiary heating. Directions for future experimental work are outlined.

V.P.

A80-13513 Energy-storage systems. F. R. Kalhammer (Electric Power Research Institute, Palo Alto, Calif.). *Scientific American*, vol. 241, Dec. 1979, p. 56-65.

Energy storage may play an important role in any shift towards increased use of coal, uranium, or solar energy. Prospects for energy storage by electric power systems, as well as in cars and commercial and residential structures are explored, including pumped-storage hydroelectric plants (one at Ludington, Michigan generates 2,000 megawatts at full power), compressed air (now successfully operational in Huntorf, West Germany), rechargeable batteries (such as lead-acid, nickel-iron, nickel-zinc, zinc-chlorine, sodium-sulfur, and lithium-iron sulfide types), and stored hot water. Pumped-storage hydroelectric plants (raised water) present topographic and environmental constraints, but underground storage is under study. Compressed air is more convenient to store, but requires cooling and then reheating for expansion into turbines. Vehicles powered by batteries, while economically feasible, have as a drawback limited range, and the idea of stored hot water, while gaining ground in Europe, faces in the United States institutional, rather than technical or economic, barriers to its use.

A80-13589 The helium question. E. Cook (Texas A & M University, College Station, Tex.). *Science*, vol. 206, Dec. 7, 1979, p. 1141-1147. 29 refs.

The question of the desirability of a governmental program of recovering and storing helium from helium-rich natural gas for the

low-cost supply of future helium demands is considered. The geologic occurence and distribution of helium, most of which is found in the United States, are discussed, and difficulties in the assessment of helium resources are presented. Uncertainties of future large-scale demand for helium for such applications as fusion reactor magnetic confinement systems, refrigeration systems, and lowtemperature energy transmission distribution and storage, which will not become operative until well into the next century, are assessed. Past helium conservation activities are reviewed, taking into account the introduction and subsequent suspension of the 1950 Helium Act Amendments. The present-value criterion of helium storage and the conservation approach are outlined, and it is concluded that a future decision to resume storing helium will be based more on prevailing ideas of fairness in intergenerational risk-bearing and equity, and on current views of the qualitative impact on future society of materials scarcities, than on any quantitative forecasts of future needs and

A80-13861 Semiconductor alternating-current motor drives and energy conservation. D. J. BenDaniel (Exxon Enterprises, Inc., Woburn, Mass.) and E. E. David, Jr. (Exxon Research and Engineering Co., Florham Park, N.J.). Science, vol. 206, Nov. 16, 1979, p. 773-776. 8 refs.

Energy conservation by means of semiconductor alternatingcurrent control of electric motor drives used in variable-rate industrial processes is presented and applications of the concept are discussed. The need for electrical energy conservation in the process industrial sector is pointed out for the case of drives used to operate industrial pumps, compressors, fans and blowers which typically involve ac electric motors controlled by throttling systems which dissipate excess motor energy. The electronic variable-speed drive is presented as an alternative to throttle control which varies the voltage and frequency simultaneously using a power inverter to achieve energy savings of up to 50% or more. The fully transistorized ac synthesizer (ACS), which represents an improvement in terms of efficiency, wave form quality, size, reliability and cost over previous silicon-controlled rectifier-based variable speed drives, is introduced and energy savings achieved with the ACS in a refinery pump are reported. Other possible applications of the ACS in high-frequency motors, as well as utility power converters and inverters and the integration of alternative electrical energy supplies into conventional power networks are indicated. A.L.W.

A80-13863 Gasohol - Does it or doesn't it produce positive net energy. R. S. Chambers, R. A. Herendeen, J. J. Joyce, and P. S. Penner (Illinois, University, Urbana, III.). Science, vol. 206, Nov. 16, 1979, p. 789-795. 41 refs.

A detailed analysis of energy inputs and outputs is performed on grain-based gasohol (10 percent grain-based ethanol, 90 percent gasoline). Existing differences of opinion on the energy balance derive mainly from variations in interpretation which are several examples of inherent methodological problems in energy analysis. The result is strongly dependent on assumptions about use of crop residues for fuel and the miles-per-gallon rating of gasohol. In terms of total nonrenewable energy, gasohol is close to the energy break-even point. On the other hand, in terms of petroleum or petroleum-substitutable energy, gasohol is an unambiguous energy producer, since most energy inputs to the process can be supplied by nonpetroleum sources such as coal. (Author)

A80-13980 Textured silicon - A selective absorber for solar thermal conversion. J. I. Gittleman, E. K. Sichel (RCA Laboratories, Princeton, N.J.), H. W. Lehmann, and R. Widmer (RCA Laboratories, Zurich, Switzerland). Applied Physics Letters, vol. 35, Nov. 15, 1979, p. 742-744. 10 refs.

Reactive sputter etching has been used to texture the surface of Si wafers. The texturing was in the form of pillars whose diameters and spacing were small compared with the useful solar wavelengths and whose heights were comparable with or larger than these wavelengths. The normal and hemispherical reflectances of textured wafers were measured. The solar absorptance was found to be 0.99 for wavelengths below 1.0 micron. Because of the sharp drop in

absorptance for photon energies less than the energy gap, the overall solar absorptance was about 0.85. The calculated thermal emittance was about 0.25 and was primarily due to multiphoton absorption processes normally observed in thick Si crystals. Much smaller values of thermal emittance would be obtained from thin textured films.

(Author

A80-13986 Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy. J. C. C. Fan, A. R. Calawa, R. L. Chapman, and G. W. Turner (MIT, Lexington, Mass.). Applied Physics Letters, vol. 35, Nov. 15, 1979, p. 804-806. 11 refs. USAF-sponsored research.

The paper reports that conversion efficiencies of up to 16% at AM1 have been obtained for molecular beam epitaxy (MBE) GaAs solar cells utilizing a shallow-homojunction n(+)/p/p(+) structure without a GaAlAs window. It is reported that the n(+), p, and p(+) GaAs layers were all grown by MBE on single-crystal p(+) GaAs substrates. In addition, cell metallization was performed by electroplating, and an antireflection coating was formed by anodic oxidation of the n(+) layer. In conclusion it is noted that these cells are the first efficient MBE solar cells of any type to be reported.

MEP

A80-14409 Flat-plate solar collector materials. M. L. Day (Ford Aerospace and Communications Co., Palo Alto, Calif.), D. S. Remer, and D. Hyatt. SAMPE Quarterly, vol. 11, Nov. 1979, p. 28-37. 10 refs. Research supported by the Southern California Gas

The desirability of specific materials and designs for conventional flat-plate solar collector components is considered. Then a methodology for choosing the most economic component is presented, consisting of a computer simulation and a rate-of-return analysis. The effect of rising conventional fuel costs is examined. Examples of using the methodology are given, based on Southern California climatic and user-demand conditions. Selective absorber-plate coatings and film inner glazing are shown to be economic, yielding a rate-of-return of 23% and 29%, respectively. (Author)

A80-14430 Effect of microwave radiation on the voltagecurrent characteristics of a variable-thickness Josephson microbridge. V. N. Gubankov, V. P. Koshelets, and G. A. Ovsiannikov (Akademiia Nauk SSSR, Institut Radiotekhniki i Elektroniki, Moscow, USSR). (Zhurnal Tekhnicheskoi Fiziki, vol. 49, Apr. 1979, p. 832-838.) Soviet Physics - Technical Physics, vol. 24, Apr. 1979, p. 481-485. 14 refs. Translation.

The paper examines data on the temperature and field dependences of the photodetection response (in narrowband and broadband detection modes) of thin-film Josephson microbridges subjected to centimeter-wave and millimeter-wave radiation. The effects of superconductivity induced in the bridges by microwave radiation and by dc current upon the response is considered. Operation in the heterodyne detection mode eliminates these effects and leads to an increase in the differential resistance of the bridges.

B.J.

A80-14516 Heat transfer in the channel of a high-power MHD generator. L. M. Biberman, M. B. Zhelezniak, V. N. Zatelepin, G. A. Liubimov, S. A. Medin, and A. Kh. Mnatsakanian. (Akademiia Nauk SSSR, Izvestiia, Mekhanika Zhidkosti i Gaza, May-June 1979, p. 136-149.) Fluid Dynamics, vol. 14, no. 3, Nov. 1979, p. 434-445. 23 refs. Translation.

The present analysis deals with a linear conduction-type open-cycle MHD generator, employing the combustion products of natural gas in oxygen-enriched air as the working medium. An approximate method (first-approximation) is proposed for calculating the MHD flow and the radiative-convective heat transfer in the generator channel. The method takes the influence of a readily ionizable admixture into consideration.

A80-14530 Some problems with variable operation of an MHD generator. V. V. Velikov, V. V. Breev, A. V. Gubarev, and A.

V. Zotov. (Magnitnaia Gidrodinamika, Jan.-Mar. 1979, p. 89-96.) Magnetohydrodynamics, vol. 15, no. 1, July 1979, p. 73-79. 5 refs. Translation

Some of the variable operating regimes of MHD generators of independent, parallel, and series excitation are characterized. For parallel and series excitations, the current-voltage characteristics are given, and the limiting values of certain characteristics are computed. The variation of parameters along the length of the duct is established for normal and anomalous duct current regimes as the counterpressure in a supersonic generator increases. A plot of the transient regimes of a generator with series connection of the magnetic coil is constructed.

P.T.H.

A80-14588 Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells. R. R. Dubin and S. Prochazka (GE Corporate Research and Development Center, Schenectady, N.Y.). Electrochemical Society, Journal, vol. 126, Dec. 1979, p. 2156-2159. 8 refs.

Several general physical properties of sintered SiC ceramic are listed and can readily be seen as desirable in Na/S cell fabrication. The present experimental study uses relevant criteria to evaluate the electrically conductive sintered SiC ceramic as a dual-function cathode container/electrode in a Na/S cell. The chemical inertness of sintered SiC is demonstrated in anhydrous melts (350 C) of sulfur, and a range of sodium polysulfides (primarily Na2S4) under a variety of experimental conditions; these include the application of anodic and cathodic currents for extended time periods, melt exposure with no applied potentials, and conditions of actual Na/S cell cycling. In addition, the ability to cycle such cells in the two-phase region is demonstrated. The electrical and mechanical properties as well as the formability of this material are shown to be adequate for use in first-generation prototype Na/S cells. In conclusion, sintered SiC can successfully be used as a noncorrodable structural material in Na/S cells. It may be used as an electrically conducting or nonelectrically conducting cell component in contact with catholyte and/or oxidizing atmosphere.

A80-14592 # Thermodynamic analysis of thermomechanical solar energy converters operating in conjunction with solar cells (Termodinamicheskii analiz teplosilovykh preobrazovatelei solnechnoi energii rabotaiushchikh v bloke s FEP). B. A. Bazarov and B. D. Tairov (Akademiia Nauk Turkmenskoi SSR, Fiziko-Tekhnicheskii Institut, Ashkhabad, Turkmen SSR). Geliotekhnika, no. 4, 1979, p. 10-13. In Russian.

The paper examines the operation of a solar energy system combining solar cells and a thermomechanical converter based on a Freon turbine with power output up to 10 kW. The basic thermodynamic and design parameters of such a system are investigated and compared to that of other Freon and water-vapor systems.

B.J.

A80-14593 # High-voltage multijunction solar cell (Vysoko-vol'tnyi mnogoperekhodnyi fotoelektricheskii preobrazovatel' solnechnoi energii). V. G. Doroshenko, M. B. Zaks, V. A. Kalash'ian, V. N. Lozovskii, Iu. V. Skokov, and O. I. Solodukha. *Geliotekhnika*, no. 4, 1979, p. 14-18. In Russian.

The paper examines the photoelectric properties of single-crystal silicon high-voltage solar cells with bulk arrangement of p-n junctions, obtained through gradient zone recrystallization. The temperature dependence of the basic properties of such cells was studied in the 100-400-K range, and volt-ampere characteristics at high illumination intensities were examined.

A80-14594 # Maximum cold-generation capacity of thermoelectric refrigerators (Maksimal'naia kholodoproizvoditel'nost' termoelektricheskikh okhlazhdaiushchikh ustroistv). R. V. Koval'skii (Vsesoiuznyi Nauchno-Issledovatel'skii Institut Istochnikov Toka, Moscow, USSR). Geliotekhnika, no. 4, 1979, p. 19-24. 6 refs. In Russian.

The paper investigates conditions under which a thermoelectric refrigerator with constant working-fluid temperature and a specified

cold-generation capacity has minimum size, weight, and amount of thermoelectric material. The effect of switching losses on device optimization is considered, and an analytical relationship for determining optimal branch height of thermoelectric elements is proposed.

B.J.

A80-14595 # Evaluation of conductor mass and necessary voltage level for large satellite solar arrays (Otsenka massy tokoprovodov i neobkhodimogo urovnia napriazheniia krupnykh orbital'nykh solnechnykh batarei). A. Kh. Cherkasskii (Vsesoiuznyi Nauchno-Issledovatel'skii Institut Istochnikov Toka, Moscow, USSR). Geliotekhnika, no. 4, 1979, p. 25-29. In Russian.

Estimates are obtained in a dimensionless form for the necessary mass of conductors for a large satellite solar array. In addition, necessary voltage levels at array output terminals are estimated as a function of area.

B.J.

A80-14596 # Development of optical waveguides for a power-related application (Razrabotka i primenenie silovykh svetovodov). V. S. Dverniakov, V. V. Pasichnyi, I. E. Kasich-Pilipenko, T. V. Eremina, D. K. Sattarov, M. I. Murav'eva, and I. E. Galant (Akademiia Nauk Ukrainskoi SSR, Institut Problem Materialovedeniia, Kiev, Ukraninian SSR). *Geliotekhnika*, no. 4, 1979, p. 36-39. 6 refs. In Russian.

The paper examines the possibility of using optical waveguides to transmit high-flux solar radiation in solar-furnace type systems. The waveguides will be used to deliver concentrated solar radiation for such manufacturing processes as zone melting, welding, and heat treatment. Design parameters and materials selection for such waveguides are considered.

B.J.

A80-14597 # Selective ray-absorption as means of increasing the efficiency of a high-temperature solar energy system (Selektivnoe luchepogloshchenie kak sredstvo povysheniia effektivnosti vysokotemperaturnoi gelioenergeticheskoi ustanovki). O. I. Kudrin, A. Abdurakhmanov, and I. A. Aggeeva. *Geliotekhnika*, no. 4, 1979, p. 40-48. In Russian.

The use of selectively absorbing surfaces to increase the efficiency of high-temperature solar energy systems is examined. Particular attention is given to the application of selective absorption to: (1) a high-temperature Stirling-engine system and (2) a solar thermal rocket engine.

A80-14655 Studies in heat transfer: A Festschrift for E. R. G. Eckert. Edited by J. P. Hartnett (Illinois, University, Chicago, Ill.), T. F. Irvine, Jr. (New York, State University, Stony Brook, N.Y.), E. Pfender (Minnesota, University, Minneapolis, Minn.), and E. M. Sparrow (Minnesota, University, Minneapolis, Minn.). Washington, Hemisphere Publishing Corp.; New York, McGraw-Hill Book Co., 1979, 528 p. \$42.50.

The book is a state-of-the-art overview of modern heat transfer, which details the most important new research, techniques, and procedures in the field. Significant topics such as boundary layers, external flows and jets, natural convection, internal flows, solar energy, conduction and fins, and boiling and condensation are covered. New information is presented on turbine blade cooling in aeroengines, heat transfer in axisymmetric confined jets, and natural convection in salt solutions near melting ice surfaces. Also covered are evaluations of solar collectors and energy converters, absorption heat pumps for solar space heating systems, the thermal conductivity of Apollo 15 lunar soil, and other subjects of interest.

A80-14667 Heat transfer to a melting solid with application to thermal energy storage systems. R. J. Goldstein and J. W. Ramsey (Minnesota, University, Minneapolis, Minn.). In: Studies in heat transfer: A Festschrift for E. R. G. Eckert.

Washington, Hemisphere Publishing Corp.; New York, McGraw-Hill Book Co., 1979, p. 199-208. 5 refs. NSF Grant No. ENG-77-21626.

The shape of a liquid-solid interface and the local heat transfer rate at this interface are studied. The experiments are performed

with naphthalene in an apparatus that is designed to permit continuous observation of the melting process. In addition, the heater contains thermocouples to evaluate the time-varying heater wall temperatures and heat transfer coefficients. Photographs of the molten region are used to evaluate the local progression of the solid-liquid interface and thus the local heat transfer rates at the interface. It is noted that for a considerable period of time the total volume of the melted region can be closely obtained from the total heat flow and the density and latent heat of the solid. The actual shape of the molten region can vary considerably depending on the conditions as a plume begins to develop.

A80-14670

Solar collectors as energy converters. F.
Bosnjakovic (Stuttgart, Universität, Stuttgart, West Germany). In:
Studies in heat transfer: A Festschrift for E. R. G. Eckert.
Washington, Hemisphere Publishing Corp.; New

York, McGraw-Hill Book Co., 1979, p. 331-381. 8 refs. Translation. A thermal solar collector operates with the energy of solar radiation, which is available partly as direct, terrestrial primary radiation and partly as indirect, diffuse secondary radiation, which is scattered by the atmosphere in all directions. The solar disk, as a first approximation, acts as a blackbody with an effective temperature of 5780 K. It is shown that the thermodynamic utilization of solar energy in currently available thermal collectors can be described as unsatisfactory to good. Apart from the influence of the weather, the efficiency depends primarily on the choice of the collector and on its operation. The ultimate yield of solar energy depends, however, not only on the collector, but also on the thermodynamic efficiency of the required supplementary equipment attached to the collector, such as simple heat exchangers, heat pumps or heat-generating power plants. The development of first-rate collectors and comparable supplementary equipment is suggested to be important for the prospects of future success in the utilization of solar energy.

A80-14671 Influence of the working fluid on heat transfer and layout of solar tower receivers. K. Bammert (Hannover, Technische Universität, Hanover, West Germany). In: Studies in heat transfer: A Festschrift for E. R. G. Eckert.

Washington, Hemisphere Publishing Corp.; New York, McGraw-Hill Book Co., 1979, p. 383-400. 13 refs.

Heat transfer to working medium is studied for a cylindrical or polygonal receiver with inner tubes. A method for calculating the distribution of the absorbed heat flux intensity on the tube surface is presented assuming axisymmetric irradiation in the receiver and considering both the tube cage geometry and reflection from the inner wall of the receiver. The method is applied to the layout of receivers in solar tower plants with closed-cycle gas turbines. A helium plant and an air plant with an output at terminals of 20 MW are taken into consideration. For both receivers an optimum irradiation pattern as well as the most favorable values for the receiver inlet pressure and geometric dimensions are given.

A80-14672

Absorption heat pumps for solar space heating systems. K. F. Knoche and D. Stehmeier (Aachen, Rheinisch-Westfalische Technische Hochschule, Aachen, West Germany). In: Studies in heat transfer: A Festschrift for E. R. G. Eckert. Washington, Hemisphere Publishing Corp.; New York, McGraw-Hill Book Co., 1979, p. 401-408.

The use of an absorption heat pump to reduce solar collector operating temperatures to below the ambient temperature and thereby increase the efficiency of solar space heating is discussed. The operational principles and enthalpy-composition diagram of a single-stage absorption device are illustrated for a lithium bromidewater absorber system, and results of a parameter survey which indicate the greater desirability of a flexible ratio between heat recovered and the heat necessary to drive the absorption boiler are presented. A multi-stage absorption device, which would allow such a variable heat ratio to be realized in an absorber resorber system, is outlined, and the similarity of the dependence of its heat ratio on collector entrance temperature to that of a reversible process is pointed out.

A.L.W.

A80-14675 The thermal triode. P. Grassmann and W. Doerfler (Institut für Verfahrens- und Kältetechnik Zurich, Switzerland). In: Studies in heat transfer: A Festschrift for E. R. G. Eckert.
Washington, Hemisphere Publishing Corp.; New York, McGraw-Hill Book Co., 1979, p. 475-484. 8 refs.

A hot water or steam heating system is a rectifier, for heat is transported only if the heat source is below the heat sink; this principle therefore applies to heat pipes. The paper demonstrates that it is possible to construct a thermal triode by adding a controlling zone to a heat pipe. This approach corresponds to the well-known electronic triode (three-electrode valve containing anode, cathode, and control grid electrode). The heat flow through the tube corresponds to the electron current and the temperature of the controlling zone corresponds to the biasing potential of the grid. The theory of such a thermal triode is developed and proved by experiment.

A80-14685 \* Solar cell spectral response characterization. E. F. Zalewski and J. Geist (National Bureau of Standards, Radiometric Physics Div., Washington, D.C.). Applied Optics, vol. 18, Dec. 1, 1979, p. 3942-3947. 15 refs. NASA-supported research.

The absolute spectral response of solar cells is reported in the 400-1000-nm spectral region. Measurements were performed using two different types of monochromatic sources: amplitude-stabilized CW laser lines and interference filters with an incandescent lamp. Both types of calibration procedures use electrical substitution radiometry as the basis of traceability to absolute SI units. The accuracy of the calibration is shown to be limited by the nonideal characteristics of the solar cells themselves, specifically spatial nonuniformities and nonlinearities induced by high light levels.

(Author)

A80-14700 \* # The role of technology as air transportation faces the fuel situation. C. Driver (NASA, Langley Research Center, Hampton, Va.). Upper Midwest Council, Meeting, Minneapolis, Minn., Nov. 1, 1979, Paper. 14 p. 17 refs.

The discussion of system integrators whose task is to identify the application and payoff of various research disciplines is limited to aircraft of the subsonic commerical transport type. The aim is to provide a brief description of the existing fuel situation, the progress made in fuel reduction, near-term prospects for further reductions, and long-term prospects for even further reductions, all primarily from the technology point of view.

A80-14701 Society and Aerospace Technology Workshop, Los Angeles, Calif., November 15, 1979, Proceedings. Workshop sponsored by the American Institute of Aeronautics and Astronautics. Edited by L. B. Sidor. Los Angeles, American Institute of Aeronautics and Astronautics, Inc. (AIAA Monograph Series. Volume 25); North Hollywood, Calif., Western Periodicals Co., 1979. 230 p. \$42.

The proceedings consider the role of technical societies in technology transfer. Attention is also given to the political realities of technology transfer. Discussion of transportation command and control covers topics such as: the BEEP demonstration project, new technology and vehicle operation on roadways, and hydrogen fuel applications for urban transit. Environmental modelling and monitoring covers topics such as the application of the ATMOSAT system to air pollution monitoring, and advances in heavy gas dispersion modelling. Areas also covered are energy demonstration projects, air pollution abatement, and planning and management techniques.

M.E.P.

A80-14702 \* # New technology and vehicle operation on roadways. D. W. Humphreys (California Institute of Technology, Jet Propulsion Laboratory, Pasadena, Calif.). In: Society and Aerospace Technology Workshop, Los Angeles, Calif., November 15, 1979, Proceedings.

Los Angeles, American Institute of Aeronautics and Astronautics, Inc.; North Hollywood, Calif., Western Periodicals Co., 1979, p. 35-44. 14 refs. Research sponsored by the U.S. Department of Energy and U.S. Department of Transportation.

Some concepts towards the optimum movement of vehicles on highways are presented. It is stressed that in proper perspective, the private automobile is one element of several modes of transportation. The modal mix in the long run is determined by proper land use planning, population density, and historic growth patterns. Discussion investigates the two main interacting elements of the highway in the dynamic state: the roadway and the driver operated vehicle, noting that the inefficiencies of the system are caused by the uncoordinated and disassociated actions of the two elements. Also discussed are vehicle operations on streets, highways, and freeways, on board communication, control, and guidance, systems considerations and traffic management, and benefits of optimized vehicle operations on roadways.

A80-14703 # Hydrogen fuel applications for urban transit.
C. A. MacCarley (Denver, University, Denver, Colo.). In: Society and Aerospace Technology Workshop, Los Angeles, Calif., November 15, 1979, Proceedings.
Los Angeles, American Institute of Aeronautics and Astronautics, Inc.; North Hollywood, Calif., Western Periodicals Co., 1979, p. 45-62. 24 refs.

It is noted that hydrogen represents a fuel that is independent of oil supplies and virtually non-polluting. Also NASA and the aerospace industry have contributed to an increased understanding of the fuel properties of hydrogen, and its increased range of applications. It is reported that technology now exists for the conversion of city buses, trucks and rail systems to hydrogen fuel. The paper discusses the technical aspects of hydrogen vehicle systems, and summarizes past and present working examples. Finally, an integrated refuse disposal-hydrogen fueled transit system for Denver, Colorado is proposed.

A80-14706 \* # Heat and electricity from the sun using parabolic dish collector systems. V. C. Truscello and A. N. Williams (California Institute of Technology, Jet Propulsion Laboratory, Pasadena, Calif.). In: Society and Aerospace Technology Workshop, Los Angeles, Calif., November 15, 1979, Proceedings.

Los Angeles, American Institute of Aeronautics and Astronautics, Inc.; North Hollywood, Calif., Western Periodicals Co., 1979, p. 137-149. 5 refs. Research sponsored by the U.S. Department of Energy.

The paper investigates point focus distributed receiver (PFDR) solar thermal technology for the production of electric power and of industrial process heat. Attention is given to a thermal systems project conducted by JPL under DOE sponsorship. It is reported that project emphasis is on the development of cost-effective systems which will accelerate the commercialization and industrialization of plants up to 10 MWe, using parabolic dish collectors. Also discussed are the characteristics of PFDR systems, the cost targets for major systems hardware, and markets for this technology. Finally, the present system status of the technology development effort is discussed.

M.E.P.

A80-14707 # Application of solar and fuel cell technology to industrial users. G. H. Gelb (TRW Energy Systems Group, Redondo Beach, Calif.). In: Society and Aerospace Technology Workshop, Los Angeles, Calif., November 15, 1979, Proceedings.

Los Angeles, American Institute of Aeronautics and Astronautics, Inc.; North Hollywood, Calif., Western Periodicals Co., 1979, p. 162-178.

The paper presents the results of two studies on the application of developing near term energy technologies of actual industrial applications. The first study applies solar energy collection to the production of medium temperature steam for a food processor. The second addresses the feasibility of using phosphoric acid fuel cells for the production of aluminum. Finally, design methodology and technical constraints are identified and the institutional and economic realities in each application are discussed.

M.E.P.

A80-14708 # Vehicle emissions control and its effect on engine development. N. Kayne (California Air Resources Board, El Monte, Calif.). In: Society and Aerospace Technology Workshop,

Los Angeles, Calif., November 15, ·1979, Proceedings.

Los Angeles, American Institute of Aeronautics and Astronautics, Inc.; North Hollywood, Calif., Western Periodicals Co., 1979, p. 185-187.

It is noted that as emissions standards have become more stringent over the years, equipment for controlling engine parameters has become complex and the parts highly interdependent. The paper presents a brief overview of electronic equipment as well as computers which are being employed to sense and control various engine parameters. The conflict between reduced emissions and reduced fuel consumption is also considered. Attention is given the there way catalyst system noting the need for electronics to effectively implement such a system. Also discussed are physical changes such as weight and size reductions in motor vehicles and the need for accurate diagnosis and maintenance to keep such systems functioning properly.

M.E.P.

A80-14709 # Hydrogen - The Denver story. E. K. Demos (Denver City and County, Dept. of Public Works, Denver, Colo.). In: Society and Aerospace Technology Workshop, Los Angeles, Calif., November 15, 1979, Proceedings. Los Angeles, American Institute of Aeronautics and Astronautics, Inc.; North Hollywood, Calif., Western Periodicals Co., 1979, p. 191-196.

The paper describes a solid waste to steam to hydrogen project being considered for implementation by the City and County of Denver, Colorado. Attention is given to issues leading to the decision to consider such a project, along with financial, institutional, and environmental concerns. Topics discussed include solid waste management, steam energy, air pollution control, energy shortages, chain of events/project status, hydrogen safety and financial considerations. It is concluded that while many questions remain unanswered, especially financial, the city's willingness to offer long term waste tonnage commitments to the project, and a strong commitment by the PSCo to purchase steam are important points in favor of the project.

A80-14791 Earth benefits of solar power satellites. P. E. Glaser (Arthur D. Little, Inc., Cambridge, Mass.). In: Space - The best is yet to come; Proceedings of the Sixteenth Space Congress, Cocoa Beach, Fla., April 25-27, 1979. Cocoa Beach, Fla., Canaveral Council of Technical Societies, 1979, p. 5-11 to 5-25. 25 refs.

The paper presents the potential of solar energy for global needs with emphasis on solar energy conversion in space for use on earth. This approach is compared with terrestrial solar energy conversion methods, and the concept of the solar power satellite (SPS) is presented. The technology options for converting solar energy in space, transmitting power, and converting it on earth into electricity are summarized, and the requirements for space transportation systems, orbital assembly, and maintenance are reviewed. The economic, institutional, and environmental aspects of SPS operations are discussed; a phased SPS development program and possible organizational structures to produce power generation on earth are outlined.

A.T.

A80-14794 A link between science and applications of automatic control; Proceedings of the Seventh Triennial World Congress, Helsinki, Finland, June 12-16, 1978. Volumes 1, 2, 3 & 4. Congress sponsored by the International Federation of Automatic Control and Ministry of Education of Finland, Edited by A. Niemi (Helsinki University of Technology, Esbo, Finland). Oxford and New York, Pergamon Press, 1979. Vol. 1, 839 p.; vol. 2, 837 p.; vol. 3, 742 p.; vol. 4, 367 p. Price of four volumes, \$400.

The Congress focused on electric power system dynamics, thermal power plant control, nuclear power plant dynamics and control, thermal processes in metallurgical industries, computer control of paper plants, chemical process control, heating systems, modelling of physiological systems, clinical health care control, systems engineering, management systems, mathematical programming, applications in control, guidance and control of aircraft, spacecraft navigation and guidance, transportation systems, and environmental and urban systems. Papers were presented on oil yield

from oil shale retorting, parameter estimation of radiocardiograms with minicomputers, integrated walking robot modelling and simulation, energy management and singular perturbations in flight mechanics, attitude and orbit control requirements on application satellites and their ground stations, a combined system of vehicle motion control, command and stability systems for aircraft, and optimal orbital transfer strategy for geostationary satellites. A.T.

A80-14795 Optimal oil yield from in situ oil shale retorting. A. Ahmad (Owens-Corning Fiberglas Technical Center, Granville, Ohio), J. H. George, and H. G. Harris (Wyoming, University, Laramie, Wyo.). In: A link between science and applications of automatic control; Proceedings of the Seventh Triennial World Congress, Helsinki, Finland, June 12-16, 1978. Volume 1.

Oxford and New York, Pergamon Press, 1979, p. 287-290. 15 refs. Contract No. E(49-18)-2234.

Recent oil price increases have made oil shale hydrocarbon reserves much more attractive for development. Utilization of oil shale involves retorting to produce oil, which requires either mining and above ground processing, or treatment by an in situ method. Because of the high costs and environmental problems associated with mining, above ground processing, and disposing of spent shale, the in situ approach is being investigated in detail, and appears to be a viable alternative. A control scheme is proposed which optimizes the oil yield based on a model developed to describe operation of the Laramie Energy Research Center 150 ton oil shale retort at Laramie, Wyoming; this retort was designed and operated to simulate in situ processing of oil shale. It is possible to obtain increases in oil yield by the optimization program. (Author)

A80-14837 On the basic dynamics of extracting power from waves. P. C. Parks (Royal Military College of Science, Shrivenham, Wilts., England). In: A link between science and applications of automatic control; Proceedings of the Seventh Triennial World Congress, Helsinki, Finland, June 12-16, 1978. Volume 2.

Oxford and New York, Pergamon Press, 1979, p. 1537-1542. 5 refs.

The paper examines some basic mechanisms for extracting power from waves, first from waves on taut strings and then from waves in the sea. A mathematically attractive device for absorbing power from sea waves is proposed in the form of an exponentially shaped wedge containing a tuned mass-spring system with damping. Attention is given to single and double-sided systems; singled-sided systems suitably tuned were found to extract all the power from an incoming harmonic wave train, while the double-sided systems can usually extract only half this power.

C.F.W.

A80-14844 An optimization model for overall urban energy planning. C. Mattsson and J. A. Bubenko (Kungl. Tekniska Hogskolan, Stockholm, Sweden). In: A link between science and applications of automatic control; Proceedings of the Seventh Triennial World Congress, Helsinki, Finland, June 12-16, 1978. Volume 3. Oxford and New York, Pergamon Press, 1979, p. 1657-1659. Research supported by the Statens Rad for Byggnadsforskning.

A model is presented for overall energy planning of an urban region with respect to the preference of energy forms. The region is divided into subareas depending on land use and their locations. Electrical and heating demands are forecasted for each subarea and network capacities and linearized cost functions. The objective is to find appropriate energy forms in each subarea to minimize the annual costs. This approach will be used to analyze the economical aspects of different trends in energy consumption, land use potentials and system performance. Finally, the model can be used to analyze the consequences of the uncertainties in cost parameters and demand forecasting. (Author)

A80-14948 Enhanced power generation of GSS/4/PS by optical solar reflectors. P. R. K. Chetty and R. M. Vasagam (Indian Space Research Organization, Satellite Centre, Bangalore, India). *IEEE Transactions on Aerospace and Electronic Systems*, vol. AES-15, Sept. 1979, p. 690-695. 8 refs.

A novel arrangement is proposed to enhance the power generation capabilities of a gravitationally stabilized solid-state-satellite solar-power station (GSS/4/PS) spherical solar collector. The unilluminated portion of a GSS(4)PS is illuminated by employing optical solar reflectors. The different mechanisms required for implementation of this arrangement are already space proven. The detailed study of this arrangement made by the authors reveals that practical realization of this concept will enhance the power generation capability of the GSS(4)PS and simultaneously reduce the weight per unit power and cost per unit power in GSS(4)PS spherical solar collectors. (Author)

A80-14960 CO2 electric discharge lasers - Present status and future applications. J. P. Reilly (W. J. Schafer Associates, Inc., Wakefield, Mass.). In: Gas-flow and chemical lasers; Proceedings of the Second International Symposium, Rhode-Saint-Genèse, Belgium, September 1978. Washington, D.C., Hemisphere Publishing Corp., 1979, p. 129-149. 13 refs.

CO2 electric discharge lasers (EDLs) have proven themselves to be efficient sources of high-power high-quality laser energy. The paper outlines applications of high-power CO2 EDLs, applications which are now becoming commercially viable, as well as those which are still being investigated in research laboratories. Applications of CO2 lasers are discussed relative to industrial applications (laser welding, laser surface hardening, heat treatment, and surface chemistry modification by laser alloying and laser glazing), laser radar applications, laser-induced fusion, and laser propulsion. Attention is given to requirements of applications versus status of technology. Examples are given of the engineering solutions used to address the technology issues identified by particular laser applications.

A80-15136 Efficient indium tin oxide/polycrystalline silicon solar cells. J. P. Schunck (CNRS, Centre de Recherches Nucléaires de Strasbourg, Strasbourg, France) and A. Coche (Strasbourg I, Universite, Strasbourg, France). Applied Physics Letters, vol. 35, Dec. 1, 1979, p. 863-865. 24 refs.

ITO/Si-N solar cells have been fabricated by a spraying process at 500 C on polycrystalline silicon. Electroless nickel plating was used for the back Ohmic contact deposition. Electrical characteristics and spectra response of these heterojunctions are compared to those obtained on monocrystalline silicon. AM1 efficiency of approximately 9 percent (based on active area) is achieved for polycrystalline material. Temperature dependence of open-circuit voltages and short-circuit currents are comparable to those reported for diffused Si junctions and Si-based MIS cells. (Author)

A80-15141 Calculated and measured efficiencies of thinfilm shallow-homojunction GaAs solar cells on Ge substrates. J. C. C. Fan, C. O. Bozler, and B. J. Palm (MIT, Lexington, Mass.). Applied Physics Letters, vol. 35, Dec. 1, 1979, p. 875-878. 13 refs. USAF-sponsored research.

By using a simple analytical model for GaAs solar cells with the n(+)/p/p(+) shallow-homojunction structure, good fits have been obtained between computer calculations and experimental data for the external quantum efficiency and AM1 conversion efficiency of thin-film GaAs cells with different values of n(+) layer thickness grown on Ge substrates. The calculations yield values for material properties of the GaAs layers composing the cells and also permit the optimization of cell design parameters. In addition, the agreement between calculation and experiment demonstrates that the Ge substrates play a passive role. Thus there has been success in fabricating 21 % efficient thin-film GaAs solar cells on non-GaAs substrates. (Author)

A80-15175 The promise and puzzle of electric vehicles. M. Wayne (Electric Power Research Institute, Palo Alto, Calif.). *EPRI Journal*, vol. 4, Nov. 1979, p. 6-15.

Electric vehicles (EVs) promise energy and environmental benefits which could cut U.S. oil use as well as hydrocarbon and CO

emissions in half if they replaced the private passenger car. The drawbacks of their batteries are limited range (20-40 miles), top speed of 40-55 mph, long recharging time, and a 25-40% premium in cost over a similar gasoline-powered car. Should a breakthrough in battery technology occur (being tested are lead-acid, nickel-iron, nickel-zinc, zinc-chlorine, sodium-sulfur, and lithium-iron sulfide types), EVs would run more cheaply on electricity than on gasoline or synthetic fuels, and have fewer engine parts to wear down than conventional cars. However, these batteries are hampered by low energy density, short cycle life, high cost, or high operating temperature. Other EV commercialization possibilities include electrified highways, a massive network of public recharging outlets, battery exchange, or a greater emphasis on hybrid (electric and gasoline) vehicles.

A80-15267 \* # Cooling a radioisotope power source in the Space Shuttle Orbiter. D. I. Levine (Rockwell International Corp., Downey, Calif.) and L. D. Stimpson (California Institute of Technology, Jet Propulsion Laboratory, Pasadena, Calif.). American Society of Mechanical Engineers, Intersociety Conference on Environmental Systems, 9th, San Francisco, Calif., July 16-19, 1979, Paper 79-ENAs-44. 7 p. Members, \$1.50; nonmembers, \$3.00.

Radioisotope thermoelectric generators (RTG's), used to generate electrical power on outer planetary spacecraft, are presently planned for a January 1982 launch of Galileo and later for a February 1983 launch. The RTG's will be externally located on a spacecraft to be deployed from the Space Shuttle Orbiter. Each RTG rejects nearly 2.5 kW (8500 Btu/hr) of thermal energy. From the time the RTG's are loaded into the payload bay until the doors are opened one to three hours after launch, active cooling will maintain proper temperature limits. This paper includes a description of two types of RTG's and the various cooling concepts considered. The payload cooling capability of the Shuttle Orbiter and modifications required to accommodate the RTG's are discussed. The analytical technique for determining the heat load split between the orbiter environment and RTG coolant is also presented. (Author)

A80-15328 Calculation of steam generation with parabolic solar collectors (Berechnung der Dampferzeugung mit parabolischen Sonnenkollektoren). M. Kuczera (Dornier System GmbH, Friedrichschafen, West Germany) and R. Günther. Brennstoff-Wärme-Kraft, vol. 31, Nov. 1979, p. 432-436. In German.

The paper presents a mathematical model which can be used to calculate the energy flow, temperatures, and efficiency degree of the steam generation performed by a cylinder-parabolic solar collector with a shielding pipe. Attention is given to a collector without a shielding pipe, a collector with a transparent shield pipe, and gray and selective absorbers. Finally, the results are compared with those from the literature. It is shown that there is no loss in operating efficiency if the steam is super heated to 500 C or 550 C. The system operated at 30 bar pressure and it is concluded that this pressure can be raised to that typical of power generating plants without any fundamental difficulties.

A80-15329 Measurements on a 15 kW wind energy conversion system (Messungen an einer 15 kW-Windkraftanlage). U. Machens (Giessen, Fachhochschule, Giessen, West Germany). Brennstoff-Wärme-Kraft, vol. 31, Nov. 1979, p. 437-440. In German. Research supported by the Bundesministerium für Forschung und Technology and Bundesministerium für wirtschaftliche Zusammenarbeit.

The paper describes a WECS which generates with an asynchronous alternator and supplies electricity to the power grid under adequate wind conditions. Attention is given to the design which consists of a high three bladed device with a horizontal axis which is 15 m i. diameter. Also discussed are the measurement facilities, Finally, the results after 300 hours of operation are examined. M.E.P.

A80-15330 The Kirsten rotor as a wind turbine (Der Kirstenrotor als Windrad). W. M. Pieper (Giessen, Fachhochschule, Giessen, West Germany). Brennstoff-Wärme-Kraft, vol. 31, Nov. 1979, p. 441-445. 18 refs. In German.

The paper calculates the output of a Kirsten rotor in terms of the various relationships between peripheral speed and wind speed and for various blade widths. Attention is given to the kinematics and dynamics of the Kirsten rotor. An equation is derived for the numerical evaluation of the rotor output. Finally, a demonstration model tested in a water tunnel is mentioned and comparisons are made with the Darrieus rotor.

M.E.P.

A80-15358 Coulombic effects in the quenching of photoexcited Tris/2,2'-bipyridine/ruthenium/II/ and related complexes by methyl viologen. G. L. Gaines, Jr. (General Electric Co., Schenectady, N.Y.). Journal of Physical Chemistry, vol. 83, Nov. 29, 1979, p. 3088-3091. 24 refs. Contract No. EG-77-C-02-4395.

A study of the quenching of luminescence of several ruthenium(II)-bipyridyl complexes by methyl viologen in aqueous salt solutions using intensity and lifetime measurements is presented. One neutral complex shows no salt effect and its quenching rate constant is near the diffusion-controlled limit; another neutral complex exhibits a small negative salt effect, possibly due to its highly dipolar structure. The three positively charged complexes studied are all quenched with similar rate constants and show similar large positive salt effects; the quenching rate constant increases sixfold when neutral salt (NaCl) is increased from 0.03 to 1.5 M, and at the highest salt content it is within a factor of 2 of the diffusion-controlled limit. While the results are consistent with the conventional Bronsted-Debye treatment of ionic reaction rates, large specific ion effects are indicated by limited data with NaClO4 as a neutral salt.

A80-15501 New development and applications in composites; Proceedings of the Symposium, St. Louis, Mo., October 16, 17, 1978. Symposium sponsored by the Metallurgical Society of AIME. Edited by D. Kuhlmann-Wilsdorf (Virginia, University, Charlottesville, Va.) and W. C. Harrigan, Jr. (DWA Composite Specialities, Inc., Chatsworth, Calif.). Warrendale, Pa., Metallurgical Society of AIME, 1979. 377 p. S35.

A collection of papers is presented which directs attention to properties of composites with components of ultrasmall dimensions, and to new applications of composites in all important areas, not only for structures but also for superconducting devices, electric contacts, and magnets. The book spans both the whole range of the most important physical (as contrasted to chemical) aspects of composites and the range from basic research to the latest industrial uses and future planning. Methods that can be employed in the production of composites with tailor-made structures are also considered.

A80-15511 Superconducting composites fabrication and properties. E. Gregory (Airco Central Research Laboratories, Murray Hill, N.J.). In: New developments and applications in composites; Proceedings of the Symposium, St. Louis, Mo., October 16, 17, 1978. Warrendale, Pa., Metallurgical Society of AIME, 1979, p. 175-196. 90 refs.

The paper describes the present commercial fabrication methods and the properties of the two most generally available multifilamentary composite conductors in the U.S.A., NbTi and Nb3Sn. An attempt is made to explain the reasons why commercial superconductors should have composite structures. Some possible future manufacturing techniques are mentioned. The complex factors affecting the optimization of the electrical and mechanical properties of the Nb3Sn composites are discussed in some detail.

S.D.

A80-15512 Preparation of superconducting coil through composite. F. E. Wang and A. P. Divecha (U.S. Navy, Naval Surface Weapons Center, Silver Spring, Md.). In: New developments and applications in composites; Proceedings of the Symposium, St. Louis, Mo., October 16, 17, 1978. Warrendale, Pa., Metallurgical Society of AIME, 1979, p. 197-203. 9 refs.

The usefulness and application of a superconductor are critically dependent on its critical temperature and on how much current it  $\frac{1}{2} \left( \frac{1}{2} \right) = \frac{1}{2} \left( \frac{1}{2} \right) \left( \frac$ 

can carry at how high a field. Nb3Al is potentially very attractive as a practical superconductor because it has the highest critical temperature (in bulk) and critical field. The problem of instability can be alleviated in four ways: utilize a superconductor with sufficiently high critical temperature, bleed off the heat generated, retard the motion of magnetic flux, and make the superconductor so finely divided that heat pulse cannot be generated to get the instability going in the first place. Taking these possible solutions into account, a multistep technique is proposed for forming a superconducting composite coil based on Nb3Al. The inherent advantages of this technique are summarized. The technique includes all the possible solutions in one sweep to remedy the instability encountered in the application of superconductivity to motor and generator devices.

٠.

S.D.

A80-15532 Volt-second consumption during the start-up phase of PLT. R. J. Hawryluk, K. Bol, and D. Johnson (Princeton University, Princeton, N.J.). *Nuclear Fusion*, vol. 19, Nov. 1979, p. 1519-1522, 13 refs. Contract No. EY-76-C-02-3073.

The volt-second consumption in the PLT tokamak was measured. During the start-up phase, the volt-second consumption is determined primarily by the external and internal flux required to establish the current profile. The resistive volt-second loss on axis is typically less than 1/4 of the total volt-seconds consumed during the first 180 ms of the discharge. The measurements reported here provide an empirical basis for establishing the volt-second requirements for future tokamak devices. (Author)

A80-15625 The role of coal in the world energy picture up to the year 2000 - Reserves, resources, and availability from the Western European viewpoint (Die Rolle der Kohle im Weltenergiebild bis zum Jahre 2000 - Reserven, Resourcen und Verfügbarkeit aus westeuropäischer Sicht). R. Neumann (Kerinforschungsanlage Jülich GmbH, Jülich, West Germany). Erdöl und Kohle Erdgas Petrochemie vereinigt mit Brennstoff-Chemie, vol. 32, Nov. 1979, p. 505-512. 27 refs. In German.

The paper stresses the importance of the situation of reserves of the fossil primary energy sources in determining the role of coal in the world energy picture. An analysis of the volume of the reserves is presented that leads to higher estimation of crude oil and natural gas reserves than is usual today. It is suggested that the established coal reserves are not clearly defined and thus cannot be directly compared with oil and gas reserves. Also, it is not likely that these reserves will be exhausted by 2000. It is noted however, that actual availability must be judged differently. It is hypothesized that problems with environmental protection, the necessity of transferring coal produc tion into less accessible areas, and of transport problems will not allow a production significantly higher than 5 x 10 to the 9 tce in the year 2000. Finally, consideration is given to the possibility that the main coal producing countries in the world - USA, USSR, and China, will themselves need the coal they produce in a situation of energy scarcity.

A80-15653 # A study of the thermal effect that radiant energy produces on a mass of water (Estudio del efecto térmico que la energia radiante produce sobre una masa de agua). M. I. S. Lopez. Extremadura, Universidad, Facultad de Ciencias, Grado de Licenciado Thesis, 1978. 77 p. 31 refs. In Spanish.

A study of heat transmission via conduction in water irradiated by a 250 W infrared lamp is reported. A plexiglass cube containing 39,304 cc of isotropic, homogeneous, distilled water (electrical conductivity of four millionths/ohm) was used, and the temperature of the experiment did not exceed 40 C so as to eliminate any effects due to convection. The water is assumed to be continuous, and the heat dynamics are considered differentially. Applying Fourier's law of the conductivity of solids, one can calculate to a very good approximation the temperature at any point and at any moment in a mass of irradiated water.

J.P.B.

A80-15658 Electric and hybrid vehicles. Edited by M. J. Collie. Park Ridge, N.J., Noyes Data Corp. (Energy Technology Review, No. 44), 1979. 652 p. \$36.

The report presents data developed by the ERDA with the assistance of NASA on the state of the art of electric and hybrid vehicles. Attention is given to three sources of data: (1) controlled tests of a representative sample of commercially available and experimental electric and hybrid vehicles, (2) information and data from the literature and vehicle manufacturers, and (3) the experience of users, both fleet operators and individual owners. Topics covered include electric vehicles - theoretical background, vehicle components such as tires, traction motors, controllers, batteries, and battery chargers, as well as hybrid vehicles, and electrochemical devices. Discussion of foreign technology covers foreign all-electric and hybrid-electric vehicle R&D, power sources, drive systems, and control systems for electric vehicles, military electric vehicles, computer analysis of foreign traction batteries in all-electric vehicles. Finally, the latest developments available Jan. 1979 are reviewed including R&D and updated assessment.

A80-15659 Heat exchange fluids and techniques. M. W. Ranney. Park Ridge, N.J., Noyes Data Corp. (Energy Technology Review, No. 50; Chemical Technology Review, No. 143), 1979. 402 p. \$42

The book presents detailed technical information based on United States patents issued since January, 1975 on heat exchange fluids and techniques, emphasizing the potential energy savings attainable. Attention is given to general heat exchanger construction and design, including tubular and other constructions, particulate exchange mediums and surface treatments, and to the compositions of heat transfer fluids. Refrigerant processes and fluids are presented, together with chemical reaction, fusion and other processes for thermal energy storage and transport. Consideration is also given to the control of heat transfer processes such as air conditioning in building structures, solar and geothermal energy processes, industrial applications of heat exchange techniques in such processes as electric energy generation and plastics processing, and specialized applications in such fields as cryobiology, automotive and aircraft design and electronics.

A.L.W.

A80-15705 # Modeling and experimental analysis of a fluidic generator. C. F. Tacey (DuPont de Nemours and Co., Engineering Dept., Wilmington, Del.), F. E. Verrier (Shell Oil Co., New Orleans, La.), L. R. Wood (Westinghouse Electric Corp., Pressurized Water Reactor Systems Div., Pittsburgh, Pa.), L. D. Mitchell, and H. A. Kursted (Virginia Polytechnic Institute and State University, Blacksburg, Va.). American Society of Mechanical Engineers, Design Engineering Technical Conference, St. Louis, Mo., Sept. 10-12, 1979, Paper 79-DET-9. 11 p. 28 refs. Members, \$1.50; nonmembers, \$3.00. Army-supported research.

Modeling of the mechanical portion of a fluidic generator for its dynamic characteristics so that optimization of the power output may be attained through mechanical system modification is presented. A regression analysis is performed on experimentally obtained data to allow specific definition of defects in the model; structural inertia, stiffness, viscous damping, and internal structural damping are used to model a corrugated diaphragm, a connecting rod, coupling nuts, and a cantilever laminated rod. A computer algorithm is used to solve the impedance formulation of the model, resulting in the dynamic compliance matrix of the structural assembly. The resultant dynamic transfer compliance is compared to the experimental Fast Fourier Transform dynamic transfer compliance as measured on the actual structure.

A80-15729 # Whirling response and stability of flexibly mounted, ring-type flywheel systems. T. L. C. Chen and C. W. Bert (Oklahoma, University, Norman, Okla.). American Society of Mechanical Engineers, Design Engineering Technical Conference, St. Louis, Mo., Sept. 10-12, 1979, Paper 79-DET-71. 10 p. 21 refs. Members, \$1.50; nonmembers, \$3.00. Research supported by the U.S. Department of Energy.

An investigation of free whirling, forced whirling, and stability analyses of two ring type composite-material flywheel systems installed in a quill-shaft, air-turbine-drive test facility is presented. These systems differ from turbine/compressor systems in two respects: (1) the flywheel rim attachment to its hub is very flexible for both translation and tilting, and (2) these flexibilities depend upon rotational speed through centrifugal stiffening. It is believed that the eight-degree-of-freedom analysis presented here is the most comprehensive for such systems, and numerical results are presented for specific flywheel systems under development at Sandia Laboratories. Critical speeds encountered in the 8000 to 32,000 rpm range and a method of overcoming the adverse effect of material internal damping on the system stability by providing an adequate external damper are discussed.

A80-15750 \* A solar-heated water system for a photographic processing laboratory. R. P. Michaelis and H. Nitta (NASA, Ames Research Center, Moffett Field, Calif.). (Society of Photographic Scientists and Engineers and U.S. Geological Survey, Seminar on Chemical and Efficient Management, Sioux Falls, S. Dak., Oct. 1978.) Journal of Applied Photographic Engineering, vol. 5, Summer 1979, p. 127-131. Contract No. NAS2-9925.

A80-15968 Colloquium on the Microclimatic Environment and Habitat, Reims, France, May 21-23, 1979, Proceedings (Colloque sur l'Environnement Microclimatique et Habitat, Reims, France, May 21-23, 1979, Proceedings). Colloquium sponsored by the Société Française des Thermiciens and l'Académie des Sciences. Reims, Université de Reims, 1979, 244 p. In French.

Two broad topics are discussed: (1) mass and heat transfer in urban microclimates and in dwellings; and (2) adaptation of dwellings to the microclimate. Particular consideration is given to: humidity transfer in walls; microclimate structure and heat flux measurements; solar adaptation of dwellings; climatic adaptation of dwellings by latent heat of fusion; and humidity control in buildings.

A80-15976 Seminar on Hydrogen as an Energy Vector: Its Production, Use and Transportation, 1st, Brussels, Belgium, October 3, 4, 1978, Proceedings. Seminar sponsored by the Commission of the European Communities. Luxembourg, Commission of the European Communities, 1978. 593 p. In English, French, German, and Italian

The seminar focused on the thermochemical production of hydrogen, hydrogen production by water electrolysis, basic and future technologies, hydrogen use, storage, and transporation. Papers are presented on pulsed electrocatalytic dissociation of water vapor, liquid-gas equilibrium in the bromine-hydrobromic acid-water system, hybrid process for hydrogen generation, hydrogen production by hybrid thermoelectric cycles, alkaline inorganic-membraneelectrolyte water electrolysis, application of electrocatalysis to the electrolysis of water at high temperature and high current density. anodic materials for the electrolysis of water, separators for electrolytic hydrogen production, fundamentals and technological aspects of medium temperature high pressure water electrolysis. hydrogen storage by reversible magnesium alloys, hydrogen storage by cryoadsorbents in comparison to alternatives, and technicaleconomic study of the use of hydrogen and methanol for automotive transportation.

A80-15990 Hydrogen storage by means of reversible magnesium alloy. P. Guinet, D. Halotier, and P. Perroud (Commissariat à l'Energie Atomique, Centre d'Etudes Nucléaires de Grenoble, Grenoble, France). In: Seminar on Hydrogen as an Energy Vector: Its Production, Use and Transportation, 1st, Brussels, Belgium, October 3, 4, 1978, Proceedings.

Luxembourg, Commission of the European Communities, 1978, p. 373-391. 20 refs.

The hydrogen sorption-desorption characteristics of various magnesium alloys are evaluated in order to assess their hydrogen-

storage capabilities. The absorption of pure hydrogen and hydrogen containing 0.1 percent O2 by Mg2Cu, Mg 5Cu, Mg2Ni, Mg3Cd, Mg2Sn, MgAI, Mg2Si, Mg 1.16Si, Mg 1Zn, MG 2Pd, Mg 8AI, Mg plus 1 wt percent FeTi, Mg plus 20 wt percent LaNi5 and Mg2Cu plus 5 wt percent FeTi alloys was determined from the pressure drop in a reaction chamber containing the metal and a specific amount of gas at temperatures up to 600 C. It is found that the sorption capacities of Mg2Cu and Mg2Ni degrade more slowly than those of pure Mg regardless of impurity content, and that Mg2Ni exhibits a greater sorption capacity and desorption rate and a smaller loss of capacity with time. The hydriding kinetics and capacity of Mg 5Cu are found to be better than those of Mg, and the capacity of Mg2Si is shown to be greater than that of Mg2Cu, while alloys such as Mg3Cd, Mg2Sn, Mg 8AI and Mg 2Pd exhibited little or no sorption. Grain size and the presence of additions such as LaNi5 are also shown to affect hydriding kinetics.

A80-15991 Use of reversible hydrides for hydrogen storage (Utilisation d'hydrures reversibles pour le stockage de l'hydrogène). B. Darriet, M. Pezat, and P. Hagenmuller (CNRS, Laboratoire de Chimie du Solide, Talence, Gironde, France). In: Seminar on Hydrogen as an Energy Vector: Its Production, Use and Transportation, 1st, Brussels, Belgium, October 3, 4, 1978, Proceedings.

Luxembourg, Commission of the European Communities, 1978, p. 392-406. In French.

The addition of a metal or alloy to form a hydride that is thermodynamically less stable than MgH2 leads to a considerable increase in the hydriding rate of Mg. Results are presented for a study designed to assess the effect of the nature of an adjuvant alloy, its concentration, the reaction temperature, and the hydrogen pressure on the reaction rate. Results on the hydriding of Mg-rich alloys - such as Mg2Ca, La2Mg17, and CeMg12 - are presented. The hydriding mechanism of La2Mg17 and CeMg12 alloys is identified.

A80-15992 Hydrogen storage by use of cryoadsorbents in comparison to alternatives. C. Carpetis and W. Peschka (Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt, Institut für technische Physik, Stuttgart, West Germany). In: Seminar on Hydrogen as an Energy Vector: Its Production, Use and Transportation, 1st, Brussels, Belgium, October 3, 4, 1978, Proceedings. Luxembourg, Commission of the European Communities, 1978, p. 407-426. 14 refs.

The paper reports investigations on the techniques and economics of hydrogen storage by means of cryoadsorption. Also a comparison with alternative storage methods is included. The hydrogen storage capacity of several adsorbents in the temperature ranges from 65 K to 150 K has been investigated experimentally. Basing on these data economics and operating conditions for minimum total costs of the system are calculated. Utilization-factor and capacity-factor parameters are shown to be decisive for outlining the favorable ranges of application for competitive hydrogen storage methods. (Author)

A80-15993 Technico economic study of the use of hydrogen and methanol for road transport. Y. Breelle, A. Chauvel, P. LePrince, C. Meyer (Institut François du Pétrole, Rueil-Malmaison, Hauts-de-Seine, France), P. Gelin, and G. Petit (Commissariat à l'Energie Atomique, Centre d'Etudes Nucléaires de Saclay, Gif-sur-Yvette, Essonne, France). In: Seminar on Hydrogen as an Energy Vector: Its Production, Use and Transportation, 1st, Brussels, Belgium, October 3, 4, 1978, Proceedings.

Luxembourg, Commission of the European Communities, 1978, p.

506-530. 12 refs. European Economic Communities Contract No. 07076-EHF.

In 1977, the French Commissariat à l'Energie Atomique and the Institut Français du Pétrole began a study of the technical and economic feasibility of using hydrogen and methanol as automotive energy sources. The paper details the portion of the study related to hydrogen distribution and summarizes the main conclusions concerning methanol. Options for the large-scale storage and transportation of gaseous and liquid hydrogen and hydrides are examined, and

different systems of energy conversion and vehicular hydrogen storage are considered. Hydrogen distribution stations are discussed, and evaluations of the economics and energetics of hydrogen use as an automotive fuel are presented. It is concluded that hydrogen internal combustion engines cannot compete with gasoline engines in the areas of primary energy consumption and fuel cost, however a hydrogen fuel cell provides appreciable energy savings at a fuel cost comparable to that of gasoline. The optimal use of methanol has been found to be as a 15 percent methanol-gasoline mixture with methanol produced in a local unit and delivered to the service station by barge and trailer.

A.L.W.

A80-16083 A review of the U.S. wind energy programme. J. R. C. Armstrong, N. H. Lipman, and P. D. Dunn (Reading, University, Reading, Berks., England). Wind Engineering, vol. 3, no. 2, 1979, p. 75-106. Research supported by the Department of Energy of England.

A80-16084 A low level wind measurement technique for wind turbine generator siting. R. W. Baker, R. L. Whitney, and E. W. Hewson (Oregon State University, Corvallis, Ore.). *Wind Engineering*, vol. 3, no. 2, 1979, p. 107-114. 11 refs. Research sponsored by the Bonneville Power Administration.

The paper presents a low level wind measurement technique for wind turbine generator siting. The Tethered Aerodynamically Lifting Anemometer (TALA) consisting of a kite with tail, tethering line, a reel, and a scale for measurement of the line tension was tested at heights of 17 to 100 m with no systematic errors suggesting that wind drag on the line of varying lengths does not introduce a significant error. With a small lifting balloon filled with helium it can be flown in very light surface winds to a level where the wind is at least 4 m/sec, the threshold of the TALA system. Although present use of the TALA system is for a large wind turbine generator siting in a mountainous terrain, it should be equally effective for air pollution investigations.

A.T.

A80-16085 Comparative performance measurements on a Savonius rotor with ancillary surfaces. D. V. Nguyen (Thiès, Ecole Polytechnique, Thiès, Senegal). Wind Engineering, vol. 3, no. 2, 1979, p. 115-120. 8 refs.

In an attempt to improve the performance of the conventional Savonius rotor, a model rotor was fitted with ancillary surfaces of aerofoil and 'umbrella' form to produce six alternative configurations. Wind tunnel tests on the models showed the performance to be improved in only one case; in the other units tested the drag effect of the ancillary surfaces appeared to predominate over any possible flow improvement. (Author)

A80-16086 The estimation of the parameters of the Weibull wind speed distribution for wind energy utilization purposes.

M. J. M. Stevens and P. T. Smulders (Eindhoven, Technische Hogeschool, Eindhoven, Netherlands). Wind Engineering, vol. 3, no. 2, 1979, p. 132-145. 16 refs. Research supported by the Dutch Ministry of Development Cooperation.

A80-16146 The methanol-air fuel cell - A selective review of methanol oxidation mechanisms at platinum electrodes in acid electrolytes. N. A. Hampson, M. J. Willars (Loughborough University of Technology, Loughborough, Leics., England), and B. D. McNicol (Shell Research, Ltd., Thornton Research Centre, Chester, England). Journal of Power Sources, vol. 4, Nov. 1979, p. 191-201. 85 refs. Research supported by the Science Research Council and Shell Research, Ltd.

Over the past few years there has been a resurgence of interest in methanol oxidation in acid electrolytes, where platinum group metals are the only practical catalysts. The recent literature concerning the adsorption and oxidation processes occurring at platinum in acid solutions is reviewed. The overall model based on contemporary data assumes that methanol adsorption follows Langmuir kinetics at low surface coverages and Elovich kinetics at higher values. The 'poisoning' intermediate (probably COH) is susceptible to an ageing process, rendering it less active, and its ultimate removal is

achieved via a chemical reaction with an electrosorbed water molecule. (Author)

A80-16147 Plastic bonded electrodes for nickel-cadmium accumulators. I - Cadmium electrode. J. Jindra, J. Mrha, K. Micka, Z. Zabransky (Ceskoslovenska Akademie Ved, Ustav Fyzikalni Chemie a Elektrochemie, Prague, Czechoslovakia), V. Koudelka, and J. Malik (Prazska Akumulatorka, Mlada Boleslav, Czechoslovakia). Journal of Power Sources, vol. 4, Nov. 1979, p. 227-237, 239-250. 20 refs.

Cadmium electrodes of outstanding electrochemical properties (over 1,000 charge-discharge cycles, active mass having a current-voltage slope of 1-2 ohm/sq. cm., volumetric capacity higher than pocket-type electrodes, depth of discharge 38 - 44% of theoretical capacity) were produced by rolling a mixture (5% polytetrafluoro-ethylene) of the active material onto a metallic current collector at normal temperature. Nickel oxide electrodes (68 - 74% precipitated Ni(OH)2, 16 - 19% powdered graphite, 4 - 7% water), similarly prepared, and having a theoretical capacity of 0.214 A h/g, were tested in alkaline electrolyte. At current loads of 3 - 100 mA/sq. cm., their current carrying capability depends on the conducting component and is proportional to the area of the active layer-collector interface, which can be enlarged either by metallization of the collector or by a combination of coarse and fine metal screens, while their cycle life depends on the quality of this interface.

J.P.B.

A80-16148 Methane fermentation of aquatic biomass. D. L. Wise, D. C. Augenstein (Dynatech R/D Co., Cambridge, Mass.), and J. H. Ryther (Woods Hole Oceanographic Institution, Woods Hole, Mass.). Resource Recovery and Conservation, vol. 4, Nov. 1979, p. 217-237. 36 refs. Contract No. EY-76-S-02-2948.

Results of a study of the characteristics of the anaerobic fermentation to methane of four aquatic biomass species in order to evaluate their suitability as energy sources are presented. Solar-dried samples of the freshwater weeds duckweed (Lemna sp.) and Hydrilla verticillata and the marine algae Gracilaria ceae and Ulva lactuca were fermented at mesophilic conditions (37 C) in continuous stirred tank reactors using a rich nutrient feed of essentially equal parts sewage sludge and aquatic biomass; the freshwater weeds were also fermented at thermophilic (60 C) conditions. Bioconversion efficiencies of 25 to 34% and 27 to 45% were obtained at mesophilic conditions for the freshwater and marine species, respectively, and efficiencies of 32 to 46% were found for freshwater weeds at thermophilic conditions. The lower than anticipated bioconversion rates at mesophilic conditions are accounted for by the slow acclimatization of innoculating microorganisms, and bioconversion efficiencies obtained in mesophilic in situ units were found to be comparable to those obtained at thermophilic conditions in the reactors, A.L.W.

A80-16150 The uncertain costs of waste disposal and resource recovery. D. C. Wilson (U.K. Atomic Energy Authority, Harwell Laboratory, Didcot, Oxon, England). Resource Recovery and Conservation, vol. 4, Nov. 1979, p. 261-299. 21 refs. Research supported by the U.K. Atomic Energy Authority.

Principles of economic evaluation previously developed are applied to a case study of the available options for waste disposal or resource recovery from solid waste. The dominant feature in any such analysis at a preliminary stage of planning is the uncertainty in the cost and revenue estimates. It is shown how this uncertainty can be explicitly included, with sensitivity analysis used to isolate the critical parameters and risk analysis to examine the range of probable costs. The results of the case study suggests that, of the thirty options studied, landfill at a local site or the use of pulverized waste directly as a fuel are currently the cheapest, followed by indirect landfill or the production of a solid refuse-derived fuel. Other options, including incineration and pyrolysis, appear currently uncompetitive in economic terms. (Author)

A80-16175 Technical possibilities and economic prospects for coal refining. A. Ziegler (Ministry for Non-nuclear Energy Research and Energy Technology, West Germany) and R. Holighaus. *Endeavour*, vol. 3, no. 4, 1979, p. 150-157. 10 refs.

Methods of gasifying or liquefying coal to produce jet fuels, gas substitutes, hydrogen and electricity, are discussed. Fixed-bed gasification (Lurgi process), with gas leaving at a low temperature and coal completely converted in the high temperature zone, gives the highest overall yields; fluidized-bed gasification (Winkler gasifier) loses some coal, which is carried away in the gas stream due to short residence time and entrained gasification that has reduced yield, since coal is used to provide 1500 C heat. Coal liquefaction by hydrogenation with today's (300 bar) pressure gasification of solid residues eliminates centrifuging, while liquefaction by Fischer-Tropsch synthesis is aimed at producing high-quality chemical feedstocks and synthesizing olefins (straight or branched chains). Gasification processes in USA (maximum methane yields) and Federal Republic of Germany work in improving existing processes are detailed, as is the potential profitability of coal liquefaction.

J.P.B.

A80-16194 Non-stochastic heating of magnetized plasma by electrostatic wave. R. Sugihara and Y. Midzuno (Nagoya University, Nagoya, Japan). *Physical Society of Japan, Journal*, vol. 47. Oct. 1979, p. 1290-1295. 11 refs.

When an electrostatic wave is suddenly applied, initially trapped particles suffer a rapid, large acceleration as well as the stochastic heating, while initially untrapped particles suffer only the stochastic heating. When the bounce frequency is larger than the square root of the product of wave frequency times cyclotron frequency, the initially trapped particles mainly absorb the wave energy and form a high energy tail. The results are applied to the problem of energetic ion creation in laser fusion plasma and of a high energy tail formation in a plasma heated by the lower hybrid wave. (Author)

A80-16262 # Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters. M. Kaminsky (Argonne National Laboratory, Argonne, III.). In: The physics of ionized gases; Summer School, 9th and Symposium, Dubrovnik, Yugoslavia, August 28-September 2, 1978, Invited Lectures and Progress Reports. Belgrade, Institut za Fiziku, 1979, p. 717-736. 20 refs. Contract No. W-31-109-eng-38.

Neutral-beam injectors are being used for the heating and fueling of plasmas in existing devices such as PLT (Princeton), ISX (Oak Ridge) and 2XIIB (Lawrence Livermore Laboratory) and will be used in devices such as TFTR (Princeton), MX (Livermore) and Doublet III (Gulf Atomic). For example, TFTR has been designed to receive a total of 20 MW of 120-keV deuterium atoms in pulses of 0.5-sec duration from 12 neutral beam injectors; for the MX experiment it is planned to inject a total of 750A (equivalent) of deuterium atoms with a mean energy of 56 keV in 0.5-sec pulses. The interaction of energetic deuterium atoms with exposed surfaces of device components such as beam dumps, beam-direct-convertors collectors, beam calorimeters, and armor plates, cause a variety of surface effects which affect deleteriously the operation of such devices. Some of the major effects are discussed. (Author)

A80-16264 # The physics of closed cycle MHD power generation. L. H. T. Rietjens (Eindhoven, Technische Hogeschool, Eindhoven, Netherlands). In: The physics of ionized gases; Summer School, 9th and Symposium, Dubrovnik, Yugoslavia, August 28-September 2, 1978, Invited Lectures and Progress Reports.

Belgrade, Institut za Fiziku, 1979, p. 753-771. 15 refs. A historical review of research work in MHD power generation is followed by a discussion of the principle of an MHD steam power plant. The physics of closed cycle MHD power generation is outlined, and means of eliminating, or drastically reducing, all losses not inherent to the actual MHD conversion processes are examined. The problem of modelling the plasma in the MHD generator is analyzed.

A80-16484 Dynamic suppression of ionization instability.
A. P. Vinogradov and V. S. Filinov (Akademiia Nauk SSSR, Institut Vysokikh Temperatur, Moscow, USSR). (Teplofizika Vysokikh

Temperatur, vol. 17, Mar. Apr. 1979, p. 236-245.) High Temperature, vol. 17, no. 2, Sept. 1979, p. 201-208. 22 refs. Translation.

A method is considered for modeling switching of MHD devices of the Faraday and Hall type, taking into account the influence of the load on the effective plasma parameters. A linear and nonlinear analysis is carried out on the development and possible suppression of ionization instability in a plasma when the direction of the mean current vector changes periodically in the channel of an MHD device. Constraints are obtained on the values of the external load, Hall parameter, and frequency of change of the direction of current (caused by changing the type of switching of the MHD device) which are necessary both for complete and partial suppression of ionization instability. The calculated effective plasma parameters are compared with experimental data. (Author)

A80-16625 Photoconverter with bilateral sensitivity. Iu. A. Anoshin, N. M. Bordina, A. K. Zaitseva, V. A. Letin, and N. A. Milovanova (Vsesoiuznyi Nauchno-Issledovatel'skii Institut Istochnikov Toka, Moscow, USSR). (Geliotekhnika, no. 2, 1979, p. 3-8.) Applied Solar Energy, vol. 15, no. 2, 1979, p. 1-7. 6 refs. Translation.

In the present paper, the current-voltage equations are derived for a photovoltaic cell with a n(+)-p-p(+) heterojunction, both for illumination of the isotopic junction and for simultaneous illumination of the isotopic and p-n junctions. The influence of the base and p(+) layer parameters on the performance of the cell is studied, and some experimental data are discussed.

V.P.

A80-16626 Broadband varizone Ga/1-x/Al/x/As-Si-photo-electric converters with an illuminated n-region. A. Berkeliev, V. N. Bessolov, A. N. Imenkov, N. Nazarov, B. V. Tsarenkov, and Iu. P. Iakovlev (Akademiia Nauk SSSR, Fiziko-Tekhnicheskii Institut, Leningrad, USSR; Akademiia Nauk Turkmenskoi SSR, Fiziko-Tekhnicheskii Institut, Ashkhabad, Turkmen SSR). (Geliotekhnika, no. 2, 1979, p. 9-12.) Applied Solar Energy, vol. 15, no. 2, 1979, p. 8-11. Translation.

(Previously cited in issue 22, p. 4179, Accession no. A79-49180)

A80-16627 Photoelectric parameters of photoelectric converters in relation to illumination. E. B. Vinogradova, T. M. Golovner, S. M. Gorodetskii, and L. B. Kreinin (Vsesoiuznyi Nauchno-Issledovatel'skii Institut Istochnikov Toka, Moscow, USSR). (Geliotekhnika, no. 2, 1979, p. 13-17.) Applied Solar Energy, vol. 15, no. 2, 1979, p. 12-16. 7 refs. Translation.

In the experiments described, the recombination characteristics and spectral sensitivity of photovoltaic cells were studied as a function of the illuminance level. The nature of bulk defects in the cell structure is studied for cells with a nonlinear lux-ampere characteristic.

V.P.

A80-16628

Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity. V. R. Zaiavlin, V. A. Letin, and N. M. Kholeva (Vsesoiuznyi Nauchno-Issledovatel'skii Institut Istochnikov Toka, Moscow, USSR). (Geliotekhnika, no. 2, 1979, p. 18-22.) Applied Solar Energy, vol. 15, no. 2, 1979, p. 17-22. 7 refs. Translation.

In the present paper, the optical characteristics of bilaterally illuminated photovoltaic cells are analyzed with the object of assessing the effectiveness of their production technology and calculating their equilibrium temperature with allowance for infrared and reflected solar radiation. The results of the analysis can be used to control current losses and to modify the production technology.

A80-16629

Calculation of the optical characteristics of high-power two-mirror solar furnaces. S. A. Azimov, Kh. M. Mallaeva, I. I. Pirmatov, T. T. Riskiev, and S. Kh. Suleimanov (Akademiia Nauk Uzbekskoi SSR, Fiziko-Tekhnicheskii Institut, Tashkent. Uzbek SSR). (Geliotekhnika, no. 2, 1979, p. 23-28.) Applied Solar Energy, vol. 15, no. 2, 1979, p. 23-29. 9 refs. Translation.

Tashkent, Uzbek SSR). (Geliotekhnika, no. 2, 1979, p. 48-54.) Applied Solar Energy, vol. 15, no. 2, 1979, p. 49-56. 7 refs. Translation.

A method of designing large solar furnaces is proposed. For illustration, the method is applied to the design of a two-mirror solar furnace and a tower-mounted solar plant.

V.P.

A80-16630 On a calculation procedure for a heat accumulator in a solar heating system. O. Azimov (Akademiia Nauk Uzbekskoi SSR, Fiziko-Tekhnicheskii Institut, Tashkent, Uzbek SSR) and R. R. Avezov (Samarkandskii Gosudarstvennyi Universitet, Samarkand, Uzbek SSR). (Geliotekhnika, no. 2, 1979, p. 29-32.) Applied Solar Energy, vol. 15, no. 2, 1979, p. 30-33. 6 refs. Translation.

A80-16631 Investigation of aerodynamic drag of solar air heaters. S. O. Khatamov, R. R. Avezov, and G. G. Umarov (Akademiia Nauk Uzbekskoi SSR, Fiziko-Tekhnicheskii Institut,

The paper deals with a theoretical and experimental study of the dynamic resistance of five representative solar air heaters of the hot box type. All the heaters studied were 1 m long, 0.64 m wide, and 0.175 m thick. Good agreement between theory and experiment is established.

V.P.

A80-16632 Investigation of absorptive and radiative characteristics of an ideal selective surface. O. I. Kudkin and A. Abdurakhmanov. (Geliotekhnika, no. 2, 1979, p. 55-62.) Applied Solar Energy, vol. 15, no. 2, 1979, p. 57-64. 6 refs. Translation.

A method for calculating the absorptivity and emissivity of a selectively absorbing surface is proposed, along with a technique for calculating the optimal threshold wave length. An improved analytical definition of an ideal selective surface for solar heating purposes is given.

A80-16651 Prospects - A social context for natural science. W. S. von Arx (Woods Hole Oceanographic Institution, Woods Hole, Mass.). Oceanus, vol. 22, Winter 1979-1980, p. 3-11. 12 refs.

Renewable global energy resources such as sunlight, photosynthesis, ocean thermal power, bioconversion of waste materials, wind, hydroelectric, and geothermal power, and the power from ocean movements (tides, currents, waves), each of which contains enormous amounts of energy in relation to present energy demands, are compared in terms of their relative power contents in this general presentation. Also discussed are the low-grade uses (e.g., space heating) of high-grade fuels such as electricity or nuclear power, and the problems stemming from waste disposal in the oceans and the storing of radionuclides, while food needs will require the proper resource management of fresh water, soil, and the marine aquaculture.

J.P.B.

A80-16652 Energy from ocean thermal gradients. R. Cohen (U.S. Department of Energy, Washington, D.C.). Oceanus, vol. 22, Winter 1979-1980, p. 12-22. 13 refs.

Ocean Thermal Energy Conversion (OTEC) transforms the solar heating of the ocean surface into electrical energy, either transmitting it to shore or using it to manufacture energy-intensive products such as aluminum, ammonia, hydrogen or magnesium at sea. Open-cycle systems, requiring extremely large turbines and degasifiers, are not thought to be as advanced as closed-cycle systems which use heat exchangers (either shell-and-tube or plate) that are made of titanium, stainless steel or aluminum alloys, which must minimize corrosion and biofouling, and that use ammonia, propane or fluorocarbons as working fluids. OTEC platform configurations include ship shapes and submersibles, such as spar buoys, and require cold-water pipes 1,000 m long, made of such materials as elastomers, lightweight concrete and fiberglass-reinforced plastic.

J.P.B.

A80-16653 The Coriolis program. P. B. S. Lissaman (Aero Vironment, Inc., Pasadena, Calif.). *Oceanus*, vol. 22, Winter 1979-1980, p. 23-28.

The Coriolis array of 242 large turbines (each rated at 83 megawatts and approximately 170 m in diameter) moored in the

Gulf Stream (or, perhaps, Japan's Kuroshio Current) could produce about 10,000 megawatts at 4 cents per kilowatt-hour, assuming a plant factor of 57%. The central mechanism of the Coriolis system is a two-stage, 91-meter rotor consisting of a pair of counter-rotating turbines housed in a flared axisymmetric duct, and having catenary blade construction, whose tips are attached to circular rims driving electrical generators. As far as environmental effects are concerned, they would be approximately as follows: reduction in the speed of the Gulf Stream, 1.2%; thermal effects, on the order of 1/100,000 degrees C; maximum wake perturbation, 2 cm.

A80-16654 Salt power - Is Neptune's ole salt a tiger in the tank. G. S. Wick (Institute for Transcultural Studies, Los Angeles, Calif.). Oceanus, vol. 22, Winter 1979-1980, p. 29-37. 7 refs.

Methods of exploiting the 24 atm osmotic pressure difference between fresh and salt water to generate energy include reverse electrodialysis, wherein 80 millivolts of electricity cross each ion-selective membrane placed between solutions of fresh and salt water. Pressure-retarded osmosis, using pumps and pressure chambers, relies on semipermeable membranes that allow fresh water to flow into saline, with power generated by the permeated water being released through a turbine. In reverse vapor compression, water vapor rapidly transfers from fresh water to salt water in an evacuated chamber (due to the vapor pressure difference between them), and power can be extracted using 24 m diameter turbine blades. Environmental concerns include protecting estuaries from stress, managing sediments, and protecting marine animals, while filtration would be needed to keep the membranes free from corrosion, biological fouling, or silting.

A80-16655 Power from ocean waves. J. N. Newman (MIT, Cambridge, Mass.). Oceanus, vol. 22, Winter 1979-1980, p. 38-45. Navy-NSF-supported research.

Extracting some of the estimated two to three trillion watts of low-grade power from wind-generated surface waves is basically a matter of utilizing vertically-moving devices either submerged or on the waves. The dynamics of unidirectional wavemakers (oscillating or rotating) is discussed, since their geometry is identical to that of efficient wave absorbers. Specific configurations include simple, small point absorbers that can theoretically focus the incident wave energy from a capture width of about half a wavelength; and hinged vessels contouring to the waves and elongated in the direction perpendicular to the wave crests, power being extracted from the relative motion of the hinged subelements. Pneumatic wave absorbers using an oscillatory air column can amplify the air's motion with a nozzle before passing through a high-speed turbine, resulting in higher grade power.

A80-16656 Fuels from marine biomass. J. H. Ryther (Woods Hole Oceanographic Institution, Woods Hole, Mass.). Oceanus, vol. 22, Winter 1979-1980, p. 48-58.

Seaweed and kelp are being investigated as possible large-scale sources of marine biomass for energy. By suspending seaweed in water, instead of near the bottom where it usually grows, the seaweed cultures maintain themselves permanently in a nonreproductive, nonfruiting stage, thereby continually vegetating. Under highly idealized test conditions (vigorous aeration, rapid exchange of seawater, frequent harvests and nutrient-enriched), the red seaweed Gracilaria tikvahiae yielded 35 g dry weight per sq. m daily, equivalent to 51 dry tons per acre yearly (with 50% ash content). The prospect of extensive offshore farms for growing plants on floating trays or woven into ropes near the surface is being studied by means of the 50 m long Macrocystis pyrifera kelp on a modular ocean test farm consisting of a 9 ft. diameter buoy attached to radial arms holding the kelp plants; nutrient-rich water is pumped from depths of 1,500 ft. J.P.B.

A80-16657 Chemosynthetic production of biomass - An idea from a recent oceanographic discovery. H. W. Jannasch (Woods Hole Oceanographic Institution, Woods Hole, Mass.). *Oceanus*, vol. 22, Winter 1979-1980, p. 59-63. 8 refs.

Chemosynthetic production as a possibly important part of an ecosystem was verified when the first deep-sea thermal springs (a source of sulfide, which provides the needed electrons) were discovered at the Galapagos Rift, where large mussels, clams and many other invertebrates had supposedly been feeding on chemosynthetically-produced organic nutrients. A high concentration of ATP was found around the vents of the springs, as well as a high production of bacterial biomass. Some 200 strains of bacteria, all capable of oxidizing sulfur compounds, and numbering approximately 1 million cells per cubic centimeter of water, were found. A chemosynthetic aquaculture, using hydrogen sulfide (which is relatively inexpensive and easily available) as the source of electrons, has the advantage over photosynthesis that all environmental factors could be kept constant.

A80-16658 Harnessing power from tides - State of the art. P. R. Ryan. *Oceanus*, vol. 22, Winter 1979-1980, p. 64-67.

Instead of a conventional dam, a membrane of reinforced plastic (the 'water sail'), hermetically anchored to the bottom and sides of a bay, could harness power from tides. Such a membrane, constructed in sections, and estimated to be 20 to 30 times cheaper to construct than a conventional tidal project, could operate in a tidal range of two meters, instead of the usual five meters. Moreover, it could be lowered or pulled aside to allow ship traffic to pass or to protect it during storms. The top of the barrier would be supported by a cable (fixed to floats) spanning the entrance to the bay, while the conversion of tidal energy would be accomplished using compressed air, with two tidal chambers connected to a large piston air motor, although the possible use of gas turbine engines will also be tested.

J.P.B.

A80-16718 Particle beam systems in plasma diagnostics.
H. P. Eubank (Princeton University, Princeton, N.J.). In: Diagnostics for fusion experiments; Proceedings of the Course, Varenna, Italy, September 4-16, 1978. Oxford, Pergamon Press, Ltd., 1979, p. 17-34. 16 refs.

The paper reviews basic principles of active beam systems in plasma diagnostics, with emphasis on systems for the measurement of plasma potential, and current and impurity profiles. Attention is given to the following: determination of ion density and Zeff; beam dissociation and optical techniques; heavy ion beam probes; and tangentially injected neutral beam probes.

B.J.

A80-16720 Diagnostics for mirror machines. J. E. Osher (California, University, Livermore, Calif.). In: Diagnostics for fusion experiments; Proceedings of the Course, Varenna, Italy, September 4-16, 1978. Oxford, Pergamon Press, Ltd., 1979, p. 47-77. 40 refs. Contract No. W-7495-eng-48.

The neutral-beam-heated quasi-dc mirror confinement systems are described and a general example of mirror diagnostics is given by a discussion of the diagnostics used on the 2XIIB experiment at the Lawrence Livermore Laboratory. Mirror machine diagnostics are then developed in more detail and attention is given to the special diagnostic needs of future mirror machines; emphasis is placed on diagnostics involving the higher-power neutral beams to be used with these future machines.

A80-16722 Hard X-ray measurements. H. Knoepfel (EURATOM and Comitato Nazionale per l'Energia Nucleare sulla Fusione, Frascati, Italy). In: Diagnostics for fusion experiments; Proceedings of the Course, Varenna, Italy, September 4-16, 1978. Oxford, Pergamon Press, Ltd., 1979, p. 111-137.

44 refs.

A review of hard X-ray measurements performed on plasma confinement devices is presented. Attention is given to measurements of bremsstrahlung from plasma (thin targets), bremsstrahlung from solid (thick) targets, and recombination lines. The use of scintillation detectors, semiconductor detectors, and collimators to perform such measurements is considered, and attention is paid to energy measurements (pileup rejection system/data analysis) and flux measurements (energy resolution).

A80-16731 Measurements of the density fluctuations using the microwave scattering method. T. Tsukishima (Nagoya University, Nagoya, Japan). In: Diagnostics for fusion experiments; Proceedings of the Course, Varenna, Italy, September 4-16, 1978.

Oxford, Pergamon Press, Ltd., 1979, p. 255-270.

13 refs

An expression is derived for microwave scattering from density fluctuations over a finite spatial region of a toroidal plasma. The accuracy of measurement is examined in terms of the finite scattering volume and observation time. In addition, measurements of scattering from nonstationary fluctuations are treated. A method for obtaining time-resolved spectra of fluctuations is described and applied to the determination of the temporal development of the electron temperature in a linear turbulent heating experiment.

A80-16745 Megavolt and megampere diagnostic techniques for pulsed power particle beam fusion drivers. M. S. Di Capua and D. G. Pellinen (Physics International Co., San Leandro, Calif.). In: Diagnostics for fusion experiments; Proceedings of the Course, Varenna, Italy, September 4-16, 1978. Oxford, Pergamon Press, Ltd., 1979, p. 511-524. 24 refs. Research supported by the U.S. Department of Energy.

This paper describes electrical diagnostic techniques applicable to experiments with pulsed power particle beam fusion drivers. To display these techniques an experiment has been designed to investigate the propagation of a 0.1-TW power pulse in coaxial and triplate vacuum transmission lines with applied fiels of 1 MV/cm, currents of approximately 100 kA, and voltages of 2 MV. Instrumentation was developed (1) to obtain a simultaneous measurement of the current on the ground as well as the high-voltage electrode at different positions along the transmission line; (2) to measure the input voltage to the transmission line, and the voltage at an arbitrary position on the triplate transmission line; (3) to measure the voltage in the field-emission diode at the output of the vacuum transmission line; (4) to measure the voltage in a resistive termination to the transmission line that could be used in the vacuum. The instruments and experimental techniques developed to acquire these kinds of data are discussed. (Author)

A80-16752 Survey of mirror machine reactors. W. C. Condit (California, University, Livermore, Calif.). In: Diagnostics for fusion experiments; Proceedings of the Course, Varenna, Italy, September 4-16, 1978. Oxford, Pergamon Press, Ltd., 1979, p. 651-680. 35 refs. Contract No. W-7405-eng-48.

The paper examines the Magnetic Mirror Fusion Program. Starting from the simple axisymmetric mirror concept the program overcame gross flute-type instabilities and the most serious micro-instabilities. Dense plasmas approaching the temperature range for fusion were produced, and extensive design studies of mirror configurations led to three designs: the standard mirror fission-fusion hybrid, tandem mirror, and the field-reversed mirror. Typical plasma parameters are given for each type of machine, concluding that in a working fusion reactor, diagnostics will be required for operational control.

A.T.

A80-16760 # Magnetic field design for a large tokamak. G.-Y. Yu, J.-B. Chen, and Y.-P. Ho (Academia Sinica, Institute of Plasma Physics, Communist China). *Acta Physica Sinica*, vol. 28, Sept. 1979, p. 712-721. In Chinese, with abstract in English.

The paper summarizes methods of the magnetic field design of the CT-8 tokamak. The effect of various types of stray field on the equilibrium of the plasma torus was analyzed, the requirement which should be satisfied by the magnetic field was discussed, and an optimization method developed. In addition, the possibility of maintaining equilibrium during thermal rises was investigated. A.T.

A80-16776 Evidence of nonlinear processes from X-ray spectra of CO2 laser-irradiated targets. H. Pépin, F. Martin, B. Grek, T. W. Johnston, J. C. Kieffer, and G. Mitchel (Québec, Université,

Varennes, Canada). *Journal of Applied Physics*, vol. 50, Nov. 1979, pt. 1, p. 6784-6788. 18 refs. Research supported by the National Research Council of Canada.

A study of the effects of nonlinear processes on X-ray emission by irradiation of CH2, AI, and Pb targets with a focused CO2 laser is presented. A multichannel X-ray spectrometer measured the X-ray spectrum from 1 to 50 keV; above a critical flux of 6 times 10 to the 12th power W/sq cm, the results show a change in slope of soft X-ray intensity vs laser flux, a change in the power-law dependence of hot temperature vs flux, an anisotropy of soft X-ray emission, and a strong production of energetic electrons. With the increasing Z number, there is no reduction of the effects of nonlinear phenomena, which appeared stronger with AI.

A80-16786 The A-I/1-y/B-I/y/C-IIID-VI/2x/E-VI2/1-x/pentenary alloy system and its application to photovoltaic solar energy conversion. J. Shewchun (McMaster University, Hamilton, Ontario, Canada; Brown University, Providence, R.I.), J. J. Loferski, R. Beaulieu (Brown University, Providence, R.I.), G. H. Chapman, and B. K. Garside (McMaster University, Hamilton, Ontario, Canada). Journal of Applied Physics, vol. 50, Nov. 1979, pt. 1, p. 6978-6985. 13 refs. Research supported by the National Research Council of Canada; Contract No. EG-77-C-1979.

The paper reports on investigation of pentenary alloy systems similar to the quarternary system in  $\ln(1-x)Ga(x)P(1-x)As(y)$ . Such pentenary alloys are mixtures of ternary chalcopyrites of the 1-III-VI2 and II-IV-V2 variety, and are of interest because they can improve the performance of heterojunction electrooptic devices such as solar cells. This improvement results because the pentenaries permit different semiconductor layers to be deposited on each other so that they are lattice and crystallographically matched, but also have independently adjustable band gaps. The Cu(1-y)Ag(y)InS2(1-x)Se(2x) system appears to have the best potential for solar energy applications. Cathodoluminescence was used to determine band gaps, and the spectra indicate that all alloys are direct-band-gap semiconductors. Isolattice constant and band-gap contour maps were obtained for the system.

A80-16794 A theoretical evaluation and optimization of the radiation resistance of gallium arsenide solar-cell structures. B. T. Debney (Plessey-Caswell Research, Ltd., Allen Clark Research Centre, Towcester, Northants., England). *Journal of Applied Physics*, vol. 50, Nov. 1979, pt. 1, p. 7210-7219. 38 refs.

Theoretical treatments are used to analyze the performance of Ga(1-x)Al(x)As/GaAs heteroface and graded band-gap solar cells, and to study the radiation resistance of the two types of cell. The optimization of these solar-cell structures to tolerate radiation-induced degradation in electronic properties is discussed and their power-conversion efficiency evaluated. The calculations indicate only a marginally greater output from the graded band-gap cell compared to the conventional heteroface type for optimized structures. A comparison with the performance of a Si space cell under 1-MeV-electron irradiation is made which illustrates a superior performance from GaAs in respect of efficiency and radiation tolerance. (Author)

A80-16799 AlGaAs tunnel diode. S. M. Bedair. *Journal of Applied Physics*, vol. 50, Nov. 1979, pt. 1, p. 7267, 7268. 8 refs. U.S. Department of Energy Contract No. 07-7149; Contract No. F33616-78-C-2077.

An AlGaAs tunnel diode with a band gap of 1.6 eV has been fabricated. This diode provides a suitable connecting junction between the high- and low-band gap cells of a cascade solar-cell structure operating at several hundred suns concentration without causing any appreciable loss in efficiency. (Author)

A80-16948 \* # Reduction of aerodynamic drag and fuel consumption for tractor-trailer vehicles. V. U. Muirhead (Kansas, University, Lawrence, Kan.) and E. J. Saltzman (NASA, Flight Research Center, Edwards, Calif.). *Journal of Energy*, vol. 3, Sept.-Oct. 1979, p. 279-284. 12 refs. NASA-supported research.

Wind-tunnel tests were performed on a scale model of a cab-over-engine tractor-trailer vehicle and several modifications of the model. Results from two of the model configurations were compared with full-scale drag data obtained from similar configurations during coast-down tests. Reductions in fuel consumption derived from these tests are presented in terms of fuel quantity and dollar savings per vehicle year, based on an annual driving distance of 160,900 km (100,000 mi.). The projected savings varied from 13,001 (3435) to 25,848 (6829) liters (gallons) per year which translated to economic savings from \$3435 to about \$6829 per vehicle year for an operating speed of 88.5 km/h (55 mph) and wind speeds near the national average of 15.3 km/h (9.5 mph). The estimated cumulative fuel savings for the entire U.S. fleet of cab-over-engine tractor, van-type trailer combinations ranged from 4.18 million kl (26.3 million bbl) per year for a low-drag configuration to approximately (Author) twice that amount for a more advanced configuration.

A80-16952 # On the weathervaning of wind turbines. R. H. Miller (MIT, Cambridge, Mass.). *Journal of Energy*, vol. 3, Sept.-Oct. 1979. p. 319.320.

The paper discussed the static stability characteristics of horizontal-axis wind turbines that are free to pivot about a vertical axis. Consideration is given to the problem of a wind turbine in the upward position with a constant velocity in the opposite direction. However, there are no solutions given or analysis offered. C.F.W.

A80-16995 Efficiency improvements in bioenergy conversion systems. C. W. Lewis (Strathclyde, University, Glasgow, Scotland). Energy Conversion, vol. 19, no. 3, 1979, p. 125-131. 32 refs

A discussion of the main bioenergy conversion systems is presented, including their respective efficiencies and how these are being improved. The concept of net energy analysis is also introduced as a guideline for determining system efficiencies and process selection. Combustion remains the most efficient conversion method for dry organic matter, with anaerobic digestion and ethanolic fermentations preferred for biomass containing a high percentage of water. The efficiencies of gasification, pyrolysis and the longer term proposition of biophotolysis are also covered.

(Author)

A80-16996 Influence of wall-jet gas injection on liquidmetal MHD generator performance. G. Fabris, E. S. Pierson, and R. L. Cole (Argonne National Laboratory, Argonne, III.). *Energy Conversion*, vol. 19, no. 3, 1979, p. 133-145. 6 refs. Research sponsored by the U.S. Department of Energy.

A80-16997 Simplified theory of nonuniform electrical conduction for an open cycle MHD generator with shaped magnetic induction. N. Kayukawa and Y. Ozawa (Hokkaido University, Sapporo, Japan). Energy Conversion, vol. 19, no. 3, 1979, p. 147-152. 7 refs.

A80-16998 Measurement of insolation using CdS photoresistor. E. Klugmann (University of Nigeria, Nsukka, Nigeria; Gdansk, Politechnika, Gdansk, Poland) and O. E. Onyeogu (University of Nigeria, Nsukka, Nigeria). *Energy Conversion*, vol. 19, no. 3, 1979, p. 153-157.

A80-16999 The ampere-hour efficiency of photovoltaic solar generators. D. G. S. Chuah (University of Science, Penang, Federation of Malaysia). *Energy Conversion*, vol. 19, no. 3, 1979, p. 177-180. 7 refs. Research supported by the University of Science.

The charging power and discharge power of two photovoltaic solar generators are measured simultaneously with the sunshine hours. A comparison of these two powers shows that there is sufficient power under the available local sunshine for lighting purposes. The ampere-hour efficiency of these generators is compared with that of lead-acid and nickel-iron cells. A 10% difference in the ampere-hour efficiencies for the two generators is observed.

(Author)

A80-17004 # MHD boundary layer of the seeded combustion gas near cold electrodes. K. Okazaki, Y. Mori, K. Hijikata, and K. Ohtake (Tokyo Institute of Technology, Tokyo, Japan). AIAA Journal, vol. 18, Jan. 1980, p. 39-46. 7 refs.

The magnetohydrodynamic boundary layer of a seeded combustion gas around a cold electrode in a magnetohydrodynamic generator in the presence of a magnetic field is analyzed for the case when a current is applied by an external electric field. A three-fluid model is used to analyze the seeded combustion gas boundary layer for the cases, of continuous and ideally segmented Faraday electrodes. It is shown that as the effective electrical conductivity perpendicular to the electrode surfaces is reduced by the magnetic field, the thicknesses of the low-electron-density region and the charge separation region increase, while for an ideally segmented electrode the deviation of the electron density from a Saha equilibrium value increases in laminar, however not in turbulent, flow. Linear stability theory is used to show that a perturbed propagating wave is generated by the effect of the magnetic field on the transition of the discharge from a diffuse mode to an arc mode, and that the stability of the diffuse discharge is degraded by the magnetic field. A.L.W.

A80-17064 # Legal and political problems of solar power stations in space. K. Wiewiorowska (Polish Institute of International Affairs, Warsaw, Poland). International Astronautical Federation, International Astronautical Congress, 30th, Munich, West Germany, Sept. 17-22, 1979, Paper 79-IISL-03. 6 p. 8 refs.

The future construction of Solar Power Stations (SPS) is discussed in the light of international and outer space law. According to the Outer Space Treaty of 1967, the free exploration and exploitation of outer space should be for the benefit and in the interests of all countries, and nations should not appropriate regions of outer space - particularly with regard to the placing of geostationary satellites, 283 of which are expected to be in orbit by 1990. Other obligations include avoiding terrestrial contamination, such as by microwave radiation beamed from an SPS, and fixing international liability with regard to objects falling to earth or colliding with other satellites.

J.P.B.

A80-17126 Renewable energy prospects; Proceedings of the Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979. Conference sponsored by the United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii. Edited by W. Bach (Münster, Universität, Münster, West Germany), W. Manshard (United Nations University, Tokyo, Japan), W. H. Matthews, and H. Brown (East-West Center, Honolulu, Hawaii). Energy (UK), vol. 4, Oct. 1979. 321 p.

Papers are presented on the prospects of renewable alternative energy sources, with consideration given to the options for short- and long-range energy strategies, the potentials and constraints of individual renewable energy resources, and energy policies and strategies. Specific topics include the feasibility of large-scale alternative energy use by the year 2000, global perspectives for long- and short-range alternative energy strategies and the prospects of solar heating and cooling systems, satellite power systems, wind energy conversion systems, wave, current and tide power, OTEC, hydro power, petroleum plantations and geothermal energy systems. Attention is also given to the growth in energy demand, the implementation of energy conservation, the climatic impact of alternative energy sources, energy sources for rural development and the prospects for renewable energy options in developing nations.

A.L.W.

A80-17127 Exploring alternative energy strategies. W. Bach (Münster, Universität, Münster, West Germany) and W. H. Matthews (East-West Center, Environment and Policy Institute, Honolulu, Hawaii). (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel

Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 711-722. 14 refs.

General considerations in the exploration of alternative energy strategies are presented. The increasing energy demand due to world population growth, economic growth, per capita energy consumption growth, unconventional resource development and urbanization is discussed, and the selection of the proper combination of fossil energy resources, nuclear energy resources and renewable energy resources is examined. The transition to such mixed energy strategies is considered, noting the technical, economic, social, political, and environmental areas that require analysis, and the controversial issues of the time scale, international relations, economic analysis, large-scale deployment, lifestyles and risks of the implementation of new strategies are outlined. The role of the technical community in the resolution of the energy problem is discussed, and a flexible energy strategy is recommended to accommodate the present state of uncertainty in future energy policy.

A.L.W.

A80-17128 Can alternative energy resources be brought into large-scale use in the United States by the year 2000. H. Brown (East-West Center, Resource Systems Institute, Honolulu, Hawaii). (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 723-731. 6 refs.

The replacement of crude oil and natural gas in the United States by the year 2000, when oil and gas production is expected to peak, by alternative energy sources, particularly synthetic crude oil made from coal, is examined, considering the interrelationships between the liquid fuel, gaseous fuel and electrical subsystems in industrialized countries. The cost of gasoline derived solely from synthetic natural gas produced from coal at a price of \$20 to \$30 per barrel is estimated to be at most less than gasoline costs in many countries, and a gradual program of gasoline tax rises is suggested to ease and finance a possible transition. The higher costs of ethanol and methanol produced from biomass as fuels are also considered. and the possibility and costs of producing three billion barrels of synthetic crude oil and 12 billion gallons of ethanol per year by the year 2000 are estimated. Modifications of the gaseous fuel subsystem by the use of methane derived from biomass and waste gasification is also considered, and the effects of these changes on the relative contributions of electrical energy sources and on world energy economics are assessed.

A80-17129 Global options for short-range alternative energy strategies. J. Goldemberg (São Paulo, Universidade, São Paulo, Brazil). United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 733-744. 13 refs.

A discussion is presented on the possibilities of supplying the energy needs of the world and particularly of the developing countries on the basis of renewable resouces: hydro power and biomass. Hydro power is found to be underused in many parts of the developing countries, and, up to the end of the century at least, 25 quads per year could be produced from this source. In addition, the unused annual increment of present-day forests could supply at least another 100 quads/year in developing countries. In industralized countries only conservation can have a significant impact as an alternative strategy. (Author)

A80-17130 Global perspectives and options for long-range energy strategies. W. Haeffele (International Institute for Applied Systems Analysis, Laxenburg, Austria). (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 745-760.

An attempt is made to envisage the evolution of energy supply and demand for the next 50 yr. Seven identified world regions are considered in order to bring out their interrelationships and to provide a background against which national or regional energy strategies can be evaluated. The principal tool for doing this is the elaboration of two detailed and largely internally consistent scenarios. This permits us to make interpolations and extrapolations. The scenarios are only conceptualizations, not predictions. This paper addresses only the technical and substantive aspects of the energy problem and does not look into political, institutional, and societal problems. It is thus meant to serve as a basis for broader policy decision-making. (Author)

A80-17131 Global aspects of sunlight as a major energy source. J. M. Weingart (California, University, Berkeley, Calif.). (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 775-798. 65 refs. Research supported by the Ford Foundation, International Institute for Applied Systems Analysis, Electric Power Research Institute, and University of California.

To achieve and sustain a decent livable world for all is a central goal for human society. While an abundant supply of energy is not in itself a determinant of such a world, it is nevertheless essential. A careful inquiry suggests that sunlight could eventually be the primary and even exclusive source of heat, electricity and synthetic fuels for the entire world, continuously and eternally on a scale (upwards of 100 TW) generally regarded possible only with fusion or with fission via the fast breeder. This could be achieved through a global network of solar conversion facilities coupled with appropriate energy transport and storage systems, and appears to be possible within acceptable constraints on energy payback time, materials and water resources, capital investment, and available suitable land. (Author)

A80-17132 Impacts of satellite power system technology. H. Moses (U.S. Department of Energy, Office of Health and Environmental Research, Washington, D.C.). (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 799-809. 15 refs.

In the Satellite Power System (SPS) considered, energy from the sun is collected by an array 5 km x 10.5 km in area, located in geostationary orbit. The array contains either silicon or gallium aluminum arsenide photovoltaic cells whose output is transformed to 2.45 GHz microwaves. These are beamed to earth to a 10 km x 15 km rectifying antenna (rectenna) which rectifies the microwaves and interfaces the power with utility power lines. Each unit will produce 5 million kW of electrical power (5GWe). Sixty such units are planned at the rate of two per year over 30 yr. The paper deals with an assessment of both the environmental and societal aspects of an SPS. Under environmental aspects, attention is devoted to the health and ecological effects of both microwave radiation and other effects. The interaction of microwaves with the atmosphere is examined particularly as it affects communication. Nonelectromagnetic radiation effects such as noise and increased pollution are also considered.

A80-17133 An analysis of the potential of wind energy conversion systems. J. W. Reed (Sandia Laboratories, Albuquerque, N. Mex.). (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 811-822. 31 refs.

Wind energy conversion systems (WECS) are solar systems because the sun drives the atmospheric circulation. An average 500 GW of electricity could be generated by massive exploitation of the U.S. Great Plains wind field. There are, however, large fluctuations in available wind power. Gusts and turbulence also require filtering to meet normal power requirements. Several schemes are evolving to

tame this erratic wind power supply. Modern technology is refining horizontal-axis turbines of a wide size range. Progress is also being made toward producing an economical vertical-axis turbine. Standards for turbine performance evaluation and installation site selection are now being developed. Eventually, mass-produced WECS may cost \$1000 per installed, rated kW, but the wind does not often flow at turbine-rated speed. With some storage or filtering, problems with wind variability may be overcome. (Author)

A80-17134 Waves, currents, tides - Problems and prospects. A. Voss (Kernforschungsanlage Jülich GmbH, Jülich, West Germany). (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 823-831. 13 refs.

A quantitative estimation of the energy potential of ocean surface waves, ocean currents and tides and a review of the techniques for utilizing these renewable energy sources, their present state of development and their economic and environmental aspects are presented. The potential of wave power, which is in the order of 1-10 TW, could become a significant source of energy in regions of the world with favorable wave conditions, such as the United Kingdom and Japan. All wave-power schemes investigated today are in early stage of development, and require more research to become commercially available. The prospects for utilizing ocean currents are relatively unattractive due to the small resource base and the possible environmental effects. Although tidal mills have been used since the eleventh century, today only one sizable tidal power plant has been built, the 240 MWe Rance Tidal Power Station in France. The overall potential of tidal energy is about 3 TW, but only in certain locations of the world do the natural conditions promise technical and economic viability. (Author)

A80-17135 Ocean thermal energy conversion /OTEC/-Social and environmental issues. A. Lavi (Carnegie-Mellon University, Pittsburgh, Pa.) and G. H. Lavi (ERDI, Inc., Pittsburgh, Pa.). (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 833-840. 13 refs.

Economic, social and environmental issues in the commercialization of OTEC are addressed, assuming technical feasibility and cost competitiveness, at least in certain areas. The market potential of OTEC on U.S. islands and in near-shore regions of the mainland is assessed and the economics of commercialization are considered. It is concluded that the private ownership of OTEC plants and facilities is not likely without government financial incentives, and the nature of possible incentives is outlined. Environmental problems of OTEC are discussed, noting ocean water mixing, chemical leakages, CO2 release from deep cold water and the presence of large numbers of plants and electric cables, and institutional questions of baseload OTEC plant licensing, regulation, world market impact and labor requirements are considered. It is concluded that OTEC represents a beneficial long-term option.

A80-17136 The application potential of hydro power. E. J. Jeffs. (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 841-849. 6 refs.

The potential for the future application of hydroelectric power, the only renewable alternative energy source with already established large-scale technology, is discussed. The scenario of a totally electric energy society in which heat can be produced as a byproduct of electricity generation is presented, and means for the expansion of hydropower installations are considered. It is suggested that small hydro plants with capacities between 1 and 10 MW could be used to meet local energy demands, pumped storage may be used to

accommodate peak demands and provide back-up energy storage, and hydropower potential can be exploited in remote regions and developing nations, possibly even by the exploitation of glacial run-off. The economic and political aspects of the development of an energy trade on the basis of new hydropower installations in remote regions are also considered.

A.L.W.

A80-17137 Petroleum plantations and synthetic chloroplasts. M. Calvin (California, University, Berkeley, Calif.). (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 851-869. 22 refs. Research sponsored by the U.S. Department of Energy.

The use of green plants as energy capturing and material storage devices is reviewed and the development of synthetic devices based on green plant photosynthesis to capture solar energy and convert it directly into long-lived useful substances is discussed. The conversion of plant-produced carbohydrates into a more reduced form by anaerobic fermentation is examined, taking into account the Brazilian program of sugar cane and manjoc conversion to alcohol for fuel. and the development of plantations of plants of the Euphoribiaecea family, which reduce carbon dioxide to hydrocarbons directly, is surveyed. Attempts to artificially reproduce the photosynthetic membrane process of electron transfer without the use of water for agriculture by the construction of separate micelles containing each reaction of the quantum absorption process, the induction of photoelectron transfer from a donor other than water, electron exchange between the two systems, and the separation of oxygen are presented. Such synthetic membrane systems would be capable of capturing solar energy and storing it indefinitely. A.L.W.

A80-17138 Prospects of future geothermal energy development. J. Suyama (Geological Survey of Japan, Kawaskai, Japan). (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 871-879. 28 refs.

Prospects for the future development of the world's geothermal energy resources are analyzed. It is shown that of the three types of geothermal resources available (hydrothermal convection, hot igneous systems and regional conductive environments), only high temperature hydrothermal convection presently has the proven technology to be commercially attractive for electric power generation. Problems in the development of hydrothermal resources in Japan and the United States for electricity generation are presented, and the use of geothermal resources for nonelectrical purposes is considered. Environmental, institutional and legal aspects of the use of geothermal energy are discussed, and it is concluded that the full exploitation of potential geothermal resources requires the improvement of exploration and assessment technology, the development of appropriate technology for utilizing these resources and the removal of many institutional constraints. A.L.W.

A80-17139 Comparative risk assessment of energy systems. S. H. Schneider (National Center for Atmospheric Research, Boulder, Colo.). (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 919-931.

The issue of risk assessment is addressed and results of a detailed analysis performed by the National Academy of Sciences Committee on Nuclear and Alternative Energy Systems of the health, environmental and socio-political risks associated with various energy alternatives are summarized. Consideration is given to the measurement of risks, the spatial and temporal heterogeneity of risks, marginal risks and benefits, the comparison of risks among activities with different benefits, the discounting of future risks, the percep-

tion of risks by the public and the uncertainties in risk assessment. Tables of the risks of nuclear, coal, oil, gas, hydroelectric, geothermal and solar energy systems are presented which demonstrate that no form of energy production is without risk. It is also concluded that our methods of risk analysis must be improved to cope with the diversity of risks and benefits associated with energy systems, that diversity in energy sources will provide some protection against unforeseen risks, and that, because of the inherent risks, it should be attempted to minimize global energy usage.

A.L.W.

A80-17140 Climatic impact of alternative energy sources. J. Williams (National Center for Atmospheric Research, Boulder, Colo.). (United Nations University, East-West Center, International Institute for Applied Systems Analysis, and University of Hawaii, Conference on Non-Fossil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, Jan. 9-12, 1979.) Energy (UK), vol. 4, Oct. 1979, p. 933-939. 14 refs. Research supported by the United Nations Environmental Programme.

The impact on the climate of the large-scale deployment of solar energy conversion systems, including OTEC and biomass conversion, to meet a future energy demand of 25 to 40 TW is estimated. The effects of solar thermal electric conversion systems on the surface energy balance, surface roughness and surface wetness of the earth are discussed. It is also shown that photovoltaic conversion could act as a local heat source, OTEC systems would modify the ocean temperature distribution, ocean currents, atmospheric CO2 content and ocean surface albedo, and the cultivation and conversion of plant biomass could cause large-scale changes in surface and atmospheric characteristics. The necessity of further climate research to better quantify these effects is pointed out and the adoption of a flexible energy strategy is suggested.

A.L.W.

A80-17218 Ablation of solid hydrogen in a plasma. L. W. Jorgensen (EURATOM and U.K. Atomic Energy Authority Fusion Association, Cutham Laboratory, Abingdon, Oxon; Imperial College of Science and Technology, London, England) and A. H. Sillesen (EURATOM and Riso National Laboratory, Roskilde, Denmark). Journal of Physics D - Applied Physics, vol. 12, Dec. 14, 1979, p. 2145-2153. 29 refs. Research supported by the Statens Naturvidenskabelige Forskningsrad.

Several hydrogen pellet ablation models based on the formation of a shielding neutral cloud have been reported by different authors. The predicted ablation rates are shown to follow almost the same scaling law and this is used to explain our ablation experiment.

(Author)

A80-17222 The present status of coal gasification following the 14th World Gas Congress - Toronto 1979 (Point sur la gazéification du charbon après le 14e Congrès Mondial du Gaz - Toronto 1979). P. Gaussens (Gaz de France, Paris, France). Revue de l'Energie, vol. 30, Nov. 1979, p. 905-922. In French.

The objectives of coal gasification are discussed and various processes are examined. Consideration is given to the advantages of using gas derived from coal rather than solid or fluidized coal in small-scale installations and coal gasification products required for space heating, water heating, small industries and heavy industry are outlined. Processes of oxyvapogasification and hydrogenation for the production of natural gas and industrial gases from coal are reviewed and evaluated with attention given to autothermic oxyvapogasification for industrial gas production and for industrial gas and synthetic natural gas production, autothermic hydrogenation processes, allothermic oxyvapogasification and hydrogenation processes and methanation processes.

A.L.W.

A80-17223 The policy of the European Economic Community in the field of energy savings (La politique de la communauté économique européenne dans le domaine des économies d'énergie). J. Carrié. Revue de l'Energie, vol. 30, Nov. 1979, p. 912-916. In French.

Policies of the European Economic Community from before the oil crisis of 1973 to the present with respect to energy savings are reviewed. The lack of response to the 1971 Report to the Club of Rome indicating the risks which could result from excessive economic growth, the report of the United States National Petroleum Committee concluding that energy savings should be a national goal and the position of the European Economic Community stressing the utilization rather than the acquisition of energy in May, 1973, are discussed. Actions taken by the Community in response to the crisis following the 1973 Arab-Israeli conflict to reduce the consumption of energy are then outlined, including the emergency measures taken by various countries at the time of the crisis and the results of community and national studies of long-term steps to be taken in the domestic, transportation and industrial sectors to ensure the availability of energy. It is concluded that events in the oil exporting countries render imperative the implementation of a policy of energy savings in Europe.

A80-17227 Energy conservation - Aerodynamic drag reduction of intercity buses. N. L. Nihan (Washington, University, Seattle, Wash.) and M. C. Sullivan (Boeing Commercial Airplane Co., Renton, Wash.). Journal of Advanced Transportation, vol. 13, Fall 1979, p. 17-23. 9 refs.

An uncertain energy supply and rising fuel prices point toward a need for energy conservation techniques in intercity travel. One economical means of conserving fuel is through the reduction of aerodynamic drag for intercity buses. This can be achieved by the use of very simple add-on devices such as guidevanes and front and side curtains. Tests indicate that a 40 percent reduction in drag could be achieved in this way. This would mean overall fuel savings of nearly 20 percent. Thus, net income for companies specializing in intercity travel would increase substantially through use of these devices.

(Author)

A80-17236 Geology of the Athabasca oil sands. G. D. Mossop (Alberta Research Council, Geology Div., Edmonton, Canada). Science, vol. 207, Jan. 11, 1980, p. 145-152. 21 refs.

In-place bitumen resources in the Alberta oil sands are estimated at 1350 billion barrels. Open-pit mining and hot water extraction methods, which involve the handling of huge tonnages of earth materials, are being employed in the two commercial plants now operating. In situ recovery methods will be required to tap the 90 percent of reserves that are too deeply buried to be surface mined. Development of in situ technologies will be painstaking and expensive, and success will hinge on their compatibility with extremely complex geological conditions in the subsurface. (Author)

A80-17241 Ethyl alcohol production and use as a motor fuel. Edited by J. K. Paul. Park Ridge, N. J., Noyes Data Corp. (Energy Technology Review, No. 50; Chemical Technology Review, No. 144), 1979. 366 p. \$48.

The book presents an economic assessment of possible modes of preparation of ethanol from various forms of biomass, natural resources and their waste materials or by-products. A chapter on current technology is also included. The present and potential availability of biomass from sugar crops, grains and grasses and silviculture is considered. Current crop production, proposed crops grown specifically for energy production, and crop wastes and residues are discussed. Finally, to determine the actual practicality of fueling motor vehicles with ethanol, either 100% or in blends, several sets of engine test data are reviewed. The results seem favorable, 10 to 20% ethanol blends performing very similarly to straight gasoline with slight gains in octane rating and mileage.

A80-17243 # Brightness distribution over the solar disk (Raspredelenie iarkosti po solnechnomn disku). K. O. Annaniiazov, V. A. Baum, and S. O. Mamedniiazov (Akademiia Nauk Turkmenskoi SSR, Institut Solnechnoi ENergii, Turkmen SSR). Akademiia Nauk Turkmenskoi SSR, Izvestiia, Seriia Fiziko-Tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk, no. 5, 1979, p. 26-29. 7 refs. In Russian.

A basic characteristic of concentrating mirror systems is radiant flux density distribution over the receiver surface. In precise mirror systems, this distribution is formed by superposition of solar images projected by the individual elements of the mirror surface onto the focal plane. In the present paper, interpolational analytical expressions are derived for the brightness distribution over the solar disks within various spectral ranges.

V.P.

A80-17244 # Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices (Gelioustanovka s negermetichno i germetichno osteklennym regeneratorom-nagrevatelem i ee energeticheskie pokazateli). A. Khandurdyev, A. Kakabaev, and Ch. Kurbankuliev (Turmenskii Gosudarstvennyi Universitet, Ashkhabad, Turkmen SSR). Akademiia Nauk Turkmenskoi SSR, Izvestiia, Seriia Fiziko-Tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk, no. 5, 1979, p. 30-36. In Russian.

A80-17245 # Results of interdepartmental tests of solar water heaters over an annual cycle. I (Rezul'taty godichnogo tsikla mezhvedomstvennykh ispytanii solnechnykh vodonagrevatelei. I). R. Bairamov, A. D. Ushakova, A. Khodzhaev, N. A. Kuladova, and O. Annaklycheva (Akademiia Nauk Turkmenskoi SSR, Institut Solnechnoi Energii, Turkmen SSR). Akademiia Nauk Turkmenskoi SSR, Izvestiia, Seriia Fiziko-Tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk, no. 5, 1979, p. 37-44. In Russian.

The paper deals with the measurement techniques and types of solar water heaters used in tests conducted by several organizations over a period of one year. Measurements of the total solar radiation at the heat-receiver surface are tabulated, along with the parameters of the water heaters tested.

V.P.

A80-17246 # Algorithm for calculating the shading and blocking of the heliostats of a solar electric power plant (Algoritm rascheta zateneniia i blokirovki geliostatov solnechnoi elektricheskoi stantsii /SES/). 1. V. Baum and S. O. Mamedniiazov (Akademiia Nauk Turkmenskoi SSR, Institut Solnechnoi Energii, Turkmen SSR). Akademiia Nauk Turkmenskoi SSR, Izvestiia, Seriia Fiziko-Tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk, no. 5, 1979. p. 97-100. In Russian.

A80-17247 # Structure of an averaged statistical pencil of rays reflected from a heliostat (Struktura srednestatisticheskogo puchka luchei, otrazhennogo ot geliostata). I. V. Baum and S. O. Mamedniiazov (Akademiia Nauk Turkmenskoi SSR, Institut Solnechnoi Energii, Turkmen SSR). Akademiia Nauk Turkmenskoi SSR, Izvestiia, Seriia Fiziko-Tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk, no. 5, 1979, p. 100-102. In Russian.

An important characteristic of the optical system of a solar power plant is the collection coefficient of radiation reflected from the heliostats. In view of the variety of existing heliostat versions, the present analysis is carried out for the reflected averaged statistical pencil of rays, whose formation is influenced by noncorrelated heliostat errors and the angular errors of the orientation systems.

V.P

A80-17252 # Ion-stimulated sorption of nitrogen on a continuously deposited titanium film. G. I. Grigorov, I. N. Martev, and K. K. Tsatsov (B'Igarska Akademiia na Naukite, Institut po Elektronika, Sofia, Bulgaria). Bolgarskaia Akademiia Nauk, Doklady, vol. 32. no. 8, 1979, p. 1069-1072. 7 refs.

Currently, a number of important technologies rely on the use of metal-metalloid compounds with a high metalloid content. The present paper deals with the preparation of TiN(x)-type compounds with x values higher than 1.15. The principal results of ionstimulated nitrogen sorption on a continuously deposited titanium film are described, and characteristic parameters of sorption on continuously deposited getter films are identified.

V.P.

A80-17307 Numerical computation of singular control problems with application to optimal heating and cooling by solar energy. H. J. Oberle (München, Technische Universität, Munich, West Germany). Applied Mathematics and Optimization, vol. 5, no. 4, 1979, p. 297-314. 25 refs.

The method presented here is an extension of the multiple shooting algorithm in order to handle multipoint boundary-value problems and problems of optimal control in the special situation of singular controls or constraints on the state variables. This generalization allows a direct treatment of (nonlinear) conditions at switching points. As an example a model of optimal heating and cooling by solar energy is considered. The model is given in the form of an optimal control problem with three control functions appearing linearly and a first order constraint on the state variables. Numerical solutions of this problem by multiple shooting techniques are presented. (Author)

A80-17343 Thionine coated electrode for photogalvanic cells. W. J. Albery, A. W. Foulds, K. J. Hall, A. R. Hillman (Imperial College of Science and Technology, London, England), R. G. Egdell, and A. F. Orchard (Oxford University, Oxford, England). *Nature*, vol. 282, Dec. 20-27, 1979, p. 793-797. 13 refs.

The characteristics of a thionine-coated illuminated electrode in a photogalvanic cell intended for solar energy conversion are investigated. Pt and SnO2 electrodes were coated with a stable layer of thionine by holding them at 1.1 to 1.5 V in a thionine solution for several minutes, and the electrode kinetics of various redox couples were examined. Current-voltage curves indicate that the reductions of thionine and its disulphonated derivative are reversible on a clean Sn or Pt electrode and nearly reversible on a coated electrode, while the coating has little effect on the reduction of quinone. For inorganic couples, the coating is found to greatly reduce the kinetics of Fe(III), Fe(CN)6(-4), Ru(2,2 prime bipyridine)3(+3) and Ce(IV) reduction. Coating voltages and times are also found to affect electrode kinetics. The inhibition of inorganic reduction by the coating is explained by the blockage of single electron transfers to the ion. It is concluded that the thionine-coated electrode has the required selectivity to act as the illuminated electrode in an A.I.W. iron-thionine galvanic cell.

A80-17352 # The relative value of energy derived from municipal refuse. R. S. Hecklinger (Charles R. Velzy Associates, Inc., Armonk, N.Y.). ASME, Transactions, Journal of Energy Resources Technology, vol. 101, Dec. 1979, p. 251-255; Discussion, p. 255-258; Author's Closures, p. 258-259. 14 refs.

Many systems for utilizing the heat energy in municipal refuse are in various stages of development. These systems either use unprocessed solid waste as a fuel or derive a fuel through processing. The fuels produced vary radically in heating value. The energy expended in processing differs from one process to another and the potential end use is not the same for each system. Six representative systems are compared to determine the relative potential value of refuse as a source of energy. (Author)

A80-17573 Solar-hydrogen energy systems. Edited by T. Ohta (Yokohama National University, Yokohama, Japan). Oxford and New York, Pergamon Press, 1979. 276 p. \$35.

The use of solar energy to produce hydrogen for use as a fuel is examined, with particular emphasis on processes for the splitting of water by sunlight. Consideration is given to the thermodynamics of watersplitting, and to the electrolysis and direct thermal decomposition of water. Thermochemical, photochemical, photoelectrochemical and biological and biochemical hydrogen production processes are presented and evaluated, and the concept of a system for the direct conversion of solar energy at sea by a general process for splitting of sea water is detailed. The storage of solar energy in the form of metal hydrides is also treated.

A.L.W.

A80-17574 Introduction - A review of the scope. T. Ohta (Yokohama National University, Yokohama, Japan). In: Solar-hydrogen energy systems. Oxford and New York, Pergamon Press, 1979, p. 1-23. 51 refs.

The significance, solar technology, processes and utilization of solar energy systems used to produce hydrogen are reviewed. Attention is given to the role of solar hydrogen energy systems within desirable future energy networks and chemical manufacturing industries, and the various types of solar collectors, including reflectors, refractors and flat plates. Direct (photolytic, thermal decomposition, biophotolytic) and indirect (electrolytic, by means of solar-generated electricity) processes of hydrogen acquisition from water are presented, taking into account various possible means of separating resultant water, hydrogen and oxygen mixtures. The utilization of hydrogen in advanced energy systems, as a chemical feedstock, as an agent in materials manufacturing and in the transportation sector is discussed.

A.L.W.

A80-17575 Thermodynamics of water-splitting. T. Ohta (Yokohama National University, Yokohama, Japan). In: Solar-hydrogen energy systems. Oxford and New York, Pergamon Press, 1979, p. 25-33, 7 refs.

The thermodynamics of water decomposition are examined with particular emphasis on thermochemical processes to be used in solar-powered systems. The structure and vibration of the water molecule are discussed, and its thermodynamic parameters, including heat of formation and changes in Gibbs free energy, entropy and enthalpy upon dissociation in the vapor state, are considered. Chemical cycles for the decomposition of water are discussed, noting the advantages of a scheme which does not require useful work, and the thermal efficiencies of the thermochemical decomposition of water and of hybrid (using thermal and nonthermal energy) cycles are examined.

A.L.W.

A80-17576 Water electrolysis. T. Takahashi (Nagoya University, Nagoya, Japan). In: Solar-hydrogen energy systems.

Oxford and New York, Pergamon Press, 1979, p. 35-58. 20 refs.

The electrolysis of water is evaluated as a potentially efficient, low cost means of hydrogen production. The theoretical energy and voltage, current, and energy efficiencies of water electrolysis are considered. The present status of water electrolysis is reviewed, with attention given to caustic potash of soda electrolytes, electrode materials, diaphragms inserted between the electrodes, and the design of unipolar and bipolar cells. Current electrolytic cells are presented and their performances are compared. Advanced high-efficiency electrolysis systems, including the Teledyne Energy Systems bipolar filter press cell, the static feed water electrolyzer, solid polymer electrolyte water electrolysis systems, high temperature solid electrolyte water electrolyzers and palladium electrode electrolyzers are described, and their potential performances are compared. Problems in the direct electrolysis of sea water are indicated, and it is concluded that water electrolysis is expected to become one of the principle means of producing large quantities of hydrogen.

A80-17577 Direct thermal decomposition of water. S. Ihara (Ministry of International Trade and Industry, Electrotechnical Laboratory, Tokyo, Japan). In: Solar-hydrogen energy systems.

Oxford and New York, Pergamon Press, 1979, p. 59-79. 19 refs.

The thermodynamics of the direct thermal decomposition of water are treated, and practical aspects of the application of solar energy as a heat source are examined. The thermodynamics of the two-step dissociation of water at temperatures less than 6000 K are discussed, with attention given to the translational, rotational, vibrational and electronic partition functions, the equilibrium composition of the gaseous products, the net energy requirements of the process, and its thermodynamic efficiency. The technical requirements of a solar system which would supply operating temperatures greater than 1500 K for decomposition in order to maximize its efficiency are examined, and possible techniques for the separation of the gas mixtures produced by the thermal decomposition of water

are compared. Experimental studies of the decomposition of water using a solar furnace and of high-temperature separation membranes are reported, and it is concluded that extensive development of a separation process is necessary for the systems analysis of solar water thermal decomposition systems.

A.L.W.

A80-17578

Thermochemical hydrogen production. S. Sato (Japan Atomic Energy Research Institute, Takasaki Radiation Chemistry Establishment, Tokai, Japan). In: Solar-hydrogen energy systems.

Oxford and New York, Pergamon Press, 1979, p. 81-114, 53 refs.

Thermochemical methods of hydrogen production by the decomposition of water are discussed. The development of thermochemical processes which would lead to the formation of hydrogen from water is reviewed, and the use of nuclear and solar heat sources for thermochemical processes is discussed. One-step and two-step processes for water decomposition are examined, discussing the thermodynamics of the overall process, the amount of energy recoverable, and the energy requirements of ideal and nonideal processes. Thermochemical reaction sequences for water decomposition, hydrogen generation, oxygen generation and the regeneration of intermediates are presented, including iron-halide and sulfur dioxide-iodine reaction families. Consideration is also given to the technical and overall evaluation of possible thermochemical processes for hydrogen production.

A.L.W.

A80-17579 Photochemical hydrogen production. M. Kamiya and T. Ohta (Yokohama National University, Yokohama, Japan). In: Solar-hydrogen energy systems.

Oxford and New York, Pergamon Press, 1979, p. 115-135. 27 refs.

The photochemical production of hydrogen from water using solar radiation as the light source is discussed. Catalytic and energetic requirements of photochemical decomposition and the electron transfer spectra of candidate catalyst ions are considered, and photochemical water dissociation reactions are classified into one-photon hydrogen-radical-forming systems, one-photon hydrogen-and-oxygen-forming systems and two-photon hydrogen-and-oxygen-forming systems and two-photon hydrogen-and-oxygen-forming systems. Specific proposed photochemical and hybrid water-splitting processes are outlined, including the hybrid Yokohama Mark 5 and 6 cycles which complete the chemical cycle using photochemical as well as thermochemical and/or electrochemical reactions, hydrogen production by the Ce(+)/Ce(+3) redox reaction, the ruthenium, rhodium, and copper complex systems, the silver zeolite process and highly organized simulated membrane systems.

A.L.W.

A80-17580 Photoelectrochemical hydrogen production. T. Watanabe, A. Fujishima, and K. Honda (Tokyo, University, Tokyo, Japan). In: Solar-hydrogen energy systems.

Oxford and New York, Pergamon Press, 1979, p. 137-169. 106 refs. Principles of and recent advances in the conversion of sunlight to fuel and electricity by means of systems based on semiconductorliquid junctions, including biophotoelectrochemical processes, are reviewed. The generation of electron-hole pairs at a semiconductor electrode in a photoelectrochemical cell and the resulting oxidation and reduction reactions in the cell are examined, noting the applicability of the system to the splitting of water and the production of hydrogen. Possible fuel-producing cells are considered, including the already demonstrated titanium dioxide/platinum electrode water-splitting cell, and discussed in terms of the stability, flatband potential, bandgap and quantum efficiency requirements of the process. The stabilization of small-bandgap semiconductor electrodes by the addition of redox species to the solution in a regenerative electrochemical photovoltaic cell is examined, and a hybrid system consisting of a combination of an electrolytic cell with a photodecomposition cell is presented. Consideration is given to photosynthetic water splitting in the presence of light, and in vitro processes based on chloroplast activity. Photoelectrocatalytic processes for hydrogen production, nitrogen reduction and carbon dioxide reduction and dye-semiconductor systems are also examined.

A.L.W.

A80-17581 Biological and biochemical hydrogen production. A. Mitsui (Miami, University, Coral Gables, Fla.). In: Solar-hydrogen energy systems. Oxford and New York, Pergamon Press, 1979, p. 171-191. 166 refs.

The production of hydrogen by intact microorganisms and cell-free biochemical systems using solar energy is discussed. Current understandings of the photoproduction of hydrogen by algae and photosynthetic bacteria are reviewed, and work with cell-free systems consisting of chloroplasts, biological electron carriers and bacterial hydrogenase is summarized, noting the feasibility of using hydrogen photoproduction by algae as a source of fuel. Means of increasing the efficiency of biological hydrogen photoproduction in living cells and cell-free systems are surveyed, and the utilization of photosynthetically produced materials for a variety of applications including biomass, fertilizer, methane, pharmaceuticals and chemicals is considered as a means of increasing the economic potential of the process. Increased research and development in the field of hydrogen photoproduction is suggested as a means leading to the production of clean, renewable energy.

A.L.W.

A80-17582 Solar energy storage by metal hydride. S. Ono (National Chemical Laboratory for Industry, Tokyo, Japan), M. Yamaguchi, and T. Ohta (Yokohama National University, Yokohama, Japan). In: Solar-hydrogen energy systems.

Oxford and New York, Pergamon Press, 1979, p. 193-224. 14 refs.

Metal hydride systems for long-term solar thermal energy storage are examined. Various materials for solar heat storage for architectural applications are reviewed, including water, pebble beds, insulators such as rock wool, glass wool and synthetic resins, molten salts and reaction heat storage systems, of which the metal hydride system is considered the most effective. The thermodynamics of metal hydride systems for hydrogen or heat storage are discussed, and the characteristics of some representative systems, namely iron-titanium hydrides, magnesium-nickel hydrides and lanthanumnickel hydrides, are considered. Results of performance tests of the endothermic and exothermic processes of an iron-titanium system are reported and the HYCSOS hydride conversion and storage system, which employs two types of hydrides, is presented. An ideal heat engine based on the metal hydriding reaction is examined theoretically and a promising prototype chemical engine based on LaNi5H6 is described. A.L.W.

A80-17583 Direct solar energy conversion at sea. W. J. D. Escher (Escher Technology Associates, St. Johns, Mich.) and T. Ohta (Yokohama National University, Yokohama, Japan). In: Solar-hydrogen energy systems. Oxford and New York, Pergamon Press, 1979, p. 225-248. 11 refs.

Hydrogen production and delivery from direct solar energy conversion facilities located at sea is treated, assuming the use of a heat engine/electricity generation/water electrolysis system. The concept of ocean energy is discussed, noting the distinction between direct and indirect solar energy conversion at sea, and direct solar energy conversion is considered within the framework of the seaward advancement of industrial societies. Results of preliminary experiments on a PORSHE (Planned Ocean Raft System for Hydrogen Economy) device are reported, and the advantages and disadvantages of locating large-scale solar energy systems at sea are discussed, noting as well the possible association of marine farming installations with energy facilities. The potential of solar hydrogen systems is assessed, and an illustrative model of an ocean-based direct solar energy conversion system for hydrogen energy production is described. The significance of hydrogen energy to other sectors of A.L.W. the energy economy is also examined.

A80-17710 Tetrachlorodibenzo-p-dioxin quantitation in stack-collected coal fly ash. B. J. Kimble (California, University, Davis, Calif.) and M. L. Gross (Nebraska, University, Lincoln, Neb.). Science, vol. 207, Jan. 4, 1980, p. 59-61. 26 refs. Research supported by the U.S. Environmental Protection Agency; NSF Grant No. CHE-78-18572; Contract No. DE-AM03-76SF00472.

Gas chromatography-high resolution mass spectrometry has been used to quantitate tetrachlorodibenzo-p-dioxin (TCDD) in fly ash collected from the stack of a typical commercial coal-fired power plant. No TCDD was detected in this fly ash, but minute traces may be present below the detection limit of 1.2 parts per trillion (by weight). This finding indicates that this type of fossil-fueled power plant is not a large source of this compound in environmental samples, in contrast to the conclusions presented in a recent industrial report. (Author)

A80-17737 \* # Preparing aircraft propulsion for a new era in energy and the environment. W. L. Stewart, D. L. Nored, J. S. Grobman, C. E. Feiler, and D. A. Petrash (NASA, Lewis Research Center, Cleveland, Ohio). Astronautics and Aeronautics, vol. 18, Jan. 1980, p. 18-31, 37. 22 refs.

Improving fuel efficiency, new sources of jet fuel, and noise and emission control are subjects of NASA's aeronautics program. Projects aimed at attaining a 5% fuel savings for existing engines and a 13-22% savings for the next generation of turbofan engines using advanced components, and establishing a basis for turboproppowered commercial air transports with 30-40% savings over conventional turbofan aircraft at comparable speeds and altitudes, are discussed. Fuel sources are considered in terms of reduced hydrogen and higher aromatic contents and resultant higher liner temperatures, and attention is given to lean burning, improved fuel atomization, higher freezing-point fuel, and deriving jet fuel from shale oil or coal. Noise sources including the fan, turbine, combustion process, and flow over internal struts, and attenuation using acoustic treatment, are discussed, while near-term reduction of polluting gaseous emissions at both low and high power, and far-term defining of the minimum gaseous-pollutant levels possible from turbine engines are also under study.

A80-17743 The scope of environmental risk management. T. O'Riordan (East Anglia, University, Norwich, England). *Ambio*, vol. 8, no. 6, 1979, p. 260-264. 17 refs.

Environmental risk management, which incorporates both scientific analysis and political judgement in a search for the safest route between social benefits and losses, is examined, and its role in decision-making institutions is discussed. Environmental risk management is shown to consist of the sequential functions of risk identification, risk estimation, risk evaluation and implementation, or risk control. The advances of environmental impact analysis and risk analysis are related to the adversary and consensus styles of political policymaking, and an organizational structure which would allow a combination of policy review and project assessment in a nonadversary seminar setting is proposed for the UK. It is concluded that the maturation of environmental risk management will not be seen until both politicians and scientists broaden the scope of their decision making to deal with a wider variety of interests.

A80-17751 Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volumes 1, 2 & 3. Conference sponsored by the International Atomic Energy Agency. Vienna, International Atomic Energy Agency (Nuclear Fusion, Supplement), 1979. Vol. 1, 846 p.; vol. 2, 690 p.; vol. 3, 566 p. Price of three volumes, \$238.

The volumes deal with the following: tokamak experiments and theory; high-beta systems, nonaxisymmetric systems, and plasma heating; and inertial confinement, and technical and reactor concepts. Specific topics covered include: investigations of lower-hybrid plasma heating in FT-1 tokamaks, deuterium diffusion studies in a tokamak plasma by pulsed injection, recent developments in linear theta-pinch and laser heated solenoid, stochastic ion heating by an electrostatic wave in a sheared magnetic field, as well as recent progress in inertial confinement fusion research at the Los Alamos Scientific Laboratory.

C.F.W.

Discussion, p. 64. 17 refs.

A80-17754 Results from the Divertor Injection Tokamak Experiment /DITE/. K. B. Axon, G. A. Baxter, J. Burt, W. H. M. Clark, G. M. McCracken, S. J. Fielding, R. D. Gill, D. H. J. Goodall, M. Hobby, and J. Hugill (EURATOM and U.K. Atomic Energy Authority Fusion Association, Culham Laboratory, Abingdon, Oxon, England). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 1.

The paper contains a review of results obtained on the DITE experiment over the last two years and previously unpublished data on plasma stability, energy and particle transport, and hydrogen re-cycling. The new 1.2-MW neutral-injection system is described, with preliminary results of injection experiments into a 150-kA discharge.

(Author)

A80-17759 Accumulation of impurities and stability behaviour in the high-density regime of Pulsator. W. Engelhardt, O. Klüber, D. Meisel, H. Murmann, S. Sesnic, G. Fussmann, E. Glock, N. Gottardi, F. Karger, and G. Lisitano (EURATOM and Max-Planck-Institut für Plasmaphysik, Garching, West Germany). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 1. Vienna, International Atomic Energy Agency, 1979, p. 123-133; Discussion, p. 133, 134.

At the end of high-density plateaus a strong accumulation of impurities by a factor of 5 within less than 10 ms is observed in Pulsator. This leads to a displacement of the current into an outer region with a subsequent steepening of the gradient at the q=2 surface. The resulting disruption prevents the production of longer density plateaus. From observations of the internal disruption and of the m=2, n=1 mode activity, it was determined that steep current gradients at q=2 trigger the current disruption. The existence of a sharp density limit, however, cannot be explained satisfactorily in these terms.

A80-17789 High-beta tokamaks. R. A. Dory, D. P. Berger, L. A. Charlton, J. T. Hogan, J. K. Munro, D. B. Nelson, Y.-K. M. Peng, D. J. Sigmar, and D. J. Strickler (Oak Ridge National Laboratory, Oak Ridge, Tenn.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 1. Vienna, International Atomic Energy Agency, 1979, p. 579-591; Discussion, p. 591, 592. 23 refs. Contract No. W-7405-eng-26.

MHD equilibrium, stability, and transport calculations are made to study the accessibility and behaviour of 'high-beta' tokamak plasmas in the range of about 5-15%. For next-generation devices, beta values of, at least, 8% appear to be accessible and stable if there is a conducting surface nearby. (Author)

A80-17790 Dependence of ideal MHD beta limits on current density and pressure profiles. R. Gruber, R. Schreiber, F. Troyon (Lausanne, Ecole Polytechnique Féderale, Lausanne, Switzerland), W. Kerner, K. Lackner (EURATOM and Max-Planck-Institut für Plasmaphysik, Garching, West Germany), A. Sykes, and J. A. Wesson (EURATOM and U.K. Atomic Energy Authority Fusion Association, Culham Laboratory, Abington, Oxon, England). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 1. Vienna, International Atomic Energy Agency, 1979, p. 593-603; Discussion, p. 603. 5 refs.

Numerical calculations of the MHD stability of a range of JET equilibria have been made. It is found that by shaping the current profile stability can be obtained for low mode numbers for values of beta in excess of 10 percent provided the plasma surface is bounded by a conducting wall. In the absence of such a wall, all of the equilibria studied are found to be unstable to free boundary modes.

A80-17797 MHD stability limits on high-beta tokamaks.

M. S. Chance, R. L. Dewar, E. A. Frieman, A. H. Glasser, J. M. Greene, R. C. Grimm, S. C. Jardin, J. Manickam, M. Okabayashi (Princeton University, Princeton, N.J.), and J. L. Johnson. In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 1. Vienna, International Atomic Energy Agency, 1979, p. 677-686; Discussion, p. 686, 687. 13 refs. Contract No. EY-76-C-02-3073.

Limitations on high-beta tokamaks are imposed by a number of ideal and resistive MHD instabilities. The present paper reports results on three such studies: (1) Numerical analyses using the Princeton PEST code on beta optimization of tokamaks for low toroidal mode numbers n; (2) analytic and numerical results on ideal ballooning modes with high n; and (3) analytic and numerical results on resistive modes at high n. (Author)

A80-17807 What is the mechanism responsible for the precursors of internal disruptions. A. Rogister and G. Hasselberg (EURATOM and Kernforschungsanlage Jülich GmbH, Institut für Plasmaphysik, Jülich, West Germany). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 1.

Vienna, International Atomic Energy Agency, 1979, p. 809-813. 8 refs.

The theory of the resistive layer of the m = 1 (MHD marginally stable) mode is revisited by including a finite diamagnetic drift frequency. The equations describing the tearing mode are approximations of more general equations which admit another solution, i.e., the electromagnetic drift wave. For the m = 1 MHD neutral mode there is no instability of the drift-tearing type, i.e., with frequency of the resistive layer approximately equal to the electron diamagnetic drift frequency while the growth rate of the tearing mode is reduced. The electromagnetic drift wave is also found to be stable; this mode would, however, yield, like the tearing mode, a natural explanation for the formation of magnetic islands. It is concluded that the precursors of the internal disruption cannot be explained without taking toroidal effects into account. (Author)

A80-17809 : LASL toroidal reversed-field pinch programme. D. A. Baker, C. J. Buchenauer, L. C. Burkhardt, J. N. DiMarco, J. N. Downing, A. Haberstich, R. B. Howell, A. R. Jacobson, H. J. Karr (California, University, Los Alamos, N. Mex.), and C. K. Chu (California, University, Los Alamos, N. Mex.), Columbia University, New York, N.Y.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 2.

Vienna, International Atomic Energy Agency, 1979, p. 3-22. 15 refs. Research sponsored by the U.S. Department of Energy.

The determination of the absolute energy loss due to radiation from impurities in the LASL toroidal reversed-field pinch experiment ZT-S is reported. The measurements show that over half the energy loss is accounted for by this mechanism. Thomson-scattering electron density measurements indicate only a gradual increase in temperature as the filling pressure is reduced, indicating an increased energy loss at lower pressures. Cylindrical and toroidal simulations of the experiment indicate either that a highly radiative pinch boundary or anomalous transport is needed to match the experimental results. New effects on the equilibrium due to plasma flows induced by the toroidal geometry are predicted by the toroidal simulations. The preliminary results on the low-temperature discharge cleaning of the ZT-S torus are reported. A description of the upgrade of the ZT-S experiment and the objectives, construction and theoretical predictions for the new ZT-40 experiment are given. (Author)

A80-17811 Studies on plasma formation, relaxation and heating in a reversed-field pinch. M. Bagatin, A. Buffa, R. De Angelis, G. Malesani, and S. Ortolani (EURATOM and Consiglio Nazionale delle Ricerche, Centro di Studio sui Gas Ionizzati, Padua, Italy). In: Plasma physics and controlled nuclear fusion research 1978; Proceed-

ings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 2. Vienna, International Atomic Energy Agency, 1979, p. 37-52. 15 refs.

Some problems relevant for the formation, relaxation and heating of a comparatively slow pinch have been investigated. The spontaneous relaxation of the pinch to a reversed-field pinch (RFP) configuration has been studied under various conditions of the ratio of the current risetime (tau sub I) to the MHD time (tau sub A). For large tau sub I/tau sub A the tendency of the pinch to evolve along a universal patch is more evident; the stability analysis and the axial flux amplification phenomenon are discussed. Ionization and start-up problems are shown to be important with reference to experiments performed on ETA-BETA I with long (exceeding 160 microsec) current risetimes and to zero-dimensional calculations of the ionization and formation phases. The steady-state and time-dependent power balance of the pinch is studied, with reference to a proposed RFP reactor, including impurity line radiation losses. Conditions for ignition are briefly discussed. (Author)

A80-17822 Principles of plasma heating and confinement in a compact toroidal configuration. A. G. Es'kov, R. Kh. Kurtmullaev, A. P. Kreshchuk, Ia. N. Laukhin, A. I. Maliutin, A. I. Markin, Iu. S. Martiushov, B. N. Mironov, M. M. Orlov, and A. P. Proshletsov (Akademiia Nauk SSSR, Institut Atomnoi Energii, Moscow, USSR). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 2. Vienna, International Atomic Energy Agency, 1979, p. 187-204. 6 refs.

Data obtained on a so-called compact toroid (a configuration where shock compression improves the stable confinement properties) are generalized and shown to be valid in a magnetic field range of 2-12 kG, a plasma density range of 10 to the 14 to 10 to the 16th per cu cm, and chamber dimensions of 20-40 cm x 100-200 cm. Attention is given to the following aspects of the problem: pulsed shaping of closed structures; optimization of shock heating; methods of magnetic-structure shaping; stability of the neutral layer; shock wave characteristics and generation conditions; toroid injection; and principles of compact-toroid confinement.

A80-17824 End plugging of a hot linear theta pinch. H. Azodi, M. Naraghi, H. Tahsiri, and A. Torabi-Fard (Atomic Energy Organization of Iran, Fusion Div., Teheran, Iran). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 2. Vienna, International Atomic Energy Agency, 1979, p. 217-227. 6 refs.

With and without solid end plugging schemes, some plasma parameters and stability traits of a 1-m-long, 10-cm-coil-bore linear theta pinch which incorporates modular construction have been investigated. The compressed thermonuclear-like plasma, having maximum density of 10 to the 16th per cu cm and ion temperature exceeding 1 keV, is stable for a short life of 5-6 microsec. Numerical calculations treated in the sharp-boundary, two-fluid approximation, with the plug assumed to be held at a constant temperature and experiencing no ablation, have shown increases in T sub e, T sub i, and N sub N, the rate of neutron production, when the end is plugged compared to the unplugged case. Streak photography at the midplane has shown a more stable but less compressed plasma when end plugs are used. Measurements of the extent of damage incurred by the plugs have shown that a similar amount of loss of plug material occurs whether the plugs are placed at the ends of the coil or positioned 20 cm outside the coil.

A80-17825 Recent developments in linear theta-pinch and laser-heated solenoid research. K. F. McKenna, R. R. Bartsch, R. J. Commisso, C. A. Ekdahl, K. B. Freese, R. F. Gribble, F. C. Jahoda, G. Miller, R. E. Siemon, and J. U. Brackbill (California, University, Los Alamos, N. Mex.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 2.

Vienna, International Atomic Energy Agency, 1979, p. 229-246; Discussion, p. 246, 247. 25 refs. Research sponsored by the U.S. Department of Energy.

Efforts of groups at the Los Alamos Scientific Laboratory (LASL), Mathematical Sciences Northwest (MSNW), and the University of Washington (UW), are reported. Experiments on the LASL high energy Scylla IV-P theta pinch have been directed toward the investigation of particle and thermal losses, the plasma flow and magnetic field interaction processes near the coil ends, end-loss suppression using solid material and plugs, and the plasma stability characteristics. Theoretical efforts at LASL have dealt with the driving mechanisms of the observed m = 1 wobble instability, numerical studies of particle end-loss, instability effects on radial diffusion, and magnetoacoustic heating methods. The interaction of CO2 laser radiation with theta-pinch-like plasma columns is being studied at MSNW and UW. In these experiments channeling of the laser light along the axis of a partially ionized plasma column and the resultant heating are investigated.

A80-17826 Heating, confinement and fluctuations in the CLEO stellarator. D. W. Atkinson, J. E. Bradley, A. N. Dellis, P. C. Johnson, D. J. Lees, P. J. Lomas, W. Millar, A. C. Selden, L. E. Sharp, and P. A. Shatford (EURATOM and U.K. Atomic Energy Authority Fusion Association, Culham Laboratory, Abingdon, Oxon, England). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Insbruck, Austria, August 23-30, 1978. Volume 2. Vienna, International Atomic Energy Agency, 1979, p. 251-263;

Discussion, p. 263, 264. 9 refs.

The confinement of an Ohmically heated plasma has been investigated in the CLEO stellarator. The electron energy replacement time is found to decrease as the drift parameter, characterized by the ratio of electron drift velocity to electron thermal velocity, is increased. Density fluctuations have been seen but do not appear to explain the observed loss as being due to a drift instability. A beam of neutrals has been injected into a plasma produced by Ohmic heating: ion heating has been observed. The results have been compared with theoretical models. It is shown that increased power input will be necessary to sustain a currentless plasma of the same parameters as those produced by Ohmic heating. (Author)

A80-17829 Current equilibrium and effective ion charge in L-2 stellarator plasma. D. K. Akulina, E. D. Andriukhina, G. S. Voronov, M. S. Berezhetskii, S. E. Grebenshchikov, I. S. Danilkin, B. I. Kornev, O. I. Fedianin, I. S. Sbitnikova, and Iu. V. Khol'nov (Akademiia Nauk SSSR, Fizicheskii Institut, Moscow, USSR). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 2. Vienna, International Atomic Energy Agency, 1979, p. 287-301. 6 refs.

This paper presents data on the equilibrium of a current in a stellarator magnetic field. It is shown that the equilibrium of a plasma column is only determined by the vacuum rotational transform angle at constant longitudinal and external transverse fields. The transverse field of the current is identical with the external transverse field. An investigation of the plasma radiation at a frequency of 2 Omega (Be) was carried out. It is shown that at a plasma density of greater than 7 x 10 to the 12th per cu cm the electron temperature obtained from the intensity of the cyclotron radiation is in a good agreement with the results of X-ray measurements and the radial temperature distribution is near to parabolic. Measurement of the effective ion charge in the plasma shows a discrepancy between the values obtained from plasma conductivity and those obtained from radiation in the soft-X-ray and visible regions of the spectrum. (Author)

A80-17840 Transverse particle losses in axially asymmetrical open traps. M. E. Kishinevskii, P. B. Lysianskii, D. D. Riutov, G. V. Stupakov, B. M. Fomel', B. V. Chirikov, and G. I. Shul'zhenko (Akademiia Nauk SSSR, Institut ladernoi Fiziki, Novosibirsk,

USSR). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978, Volume 2.

Vienna, International Atomic Energy Agency, 1979, p. 411-426; Discussion, p. 426, 11 refs.

The effect of axial asymmetry of the magnetic field on transverse plasma losses from traps with improved longitudinal confinement is discussed. The role of these losses is characterized by the angle of rotation of the guiding centre of the particle around the magnetic axis during motion of the particle from mirror to mirror. The transport regimes are classified as a function of this angle. Corresponding analytical estimates of the transport coefficients are presented. A stochastic instability leading to collisionless diffusion due to field perturbation as a result of slight misaligments in the magnetic system was studied experimentally in terms of a specially constructed electron model in which the electrons moved in longitudinal magnetic and radial electric fields. Resonance and stochastic diffusion were also investigated numerically in terms of a special model. The numerical results are in satisfactory agreement with simple analytical estimates for the instability boundary and diffusion rate under the joint effects of resonances and multiple scattering.

A80-17846 Drift wave stability and transport theory in fusion systems. N. A. Krall, S. Hamasaki, J. B. McBride (Science Applications, Inc., La Jolla, Calif.), N. T. Gladd, P. H. Ng, H. H. Chen (Maryland, University, College Park, Md.), J. D. Huba (U.S. Navy, Naval Research Laboratory, Washington, D.C.), R. C. Davidson (U.S. Department of Energy, Washington, D.C.), R. E. Aamodt, and Y.-C. Lee (Science Applications, Inc., Boulder, Colo.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 2. Vienna, International Atomic Energy Agency, 1979, p. 483-495; Discussion, p. 495, 496. 17 refs.

The linear properties of lower hybrid, drift cyclotron, and drift cyclotron loss-cone instabilities are calculated including shear, beta and distribution function effects. Transport runs including these effects are carried out for experiment-sized and reactor-sized devices. Non-linear effects on the DC mode due to frequency and wavenumber shifts are calculated. (Author)

A80-17855 Fast-magnetosonic-wave excitation in large-tokamak plasmas. A. V. Longinov, K. N. Stepanov, V. A. Tsurikov (Akademiia Nauk Ukrainskoi SSR, Fiziko-Tekhnicheskii Institut, Kharkov, Ukrainian SSR). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 2. Vienna, International Atomic Energy Agency, 1979, p. 583-605; Discussion, p. 605. 16 refs.

A general description of fast magnetosonic wave (FMSW) excitation in a large plasma torus is given. Resonant excitation of a separate eigenmode is shown to be possible in a region of weak damping as well as resonant excitation of paired eigenmodes. With increasing damping multimode resonances appear and a regime of radiation into half space is realized in the strong damping region. Characteristics of FMSW excitation by a current layer in the presence of a metal screen (vacuum chamber) are discussed. Results are presented on the calculation of excitation and damping of FMSW with a frequency of 20mega(Bi) in a T-10 tokamak. Attention is also given to the advantages and disadvantages of using different regimes of FMSW excitation for plasma heating in tokamaks of various dimensions.

A80-17857 Investigation of plasma heating by powerful relativistic electron beams. A. V. Arzhannikov, A. V. Burdakov, B. N. Breizman, A. S. Burmasov, L. N. Viacheslavov, V. S. Koidan, V. V. Koniukhov, V. A. Kornilov, E. P. Krugliakov, and V. N. Lukh'ianov (Akademiia Nauk SSSR, Institut ladernoi Fiziki, Novosibirsk, USSR). In: Plasma physics and controlled nuclear fusion research

1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 2. Vienna, International Atomic Energy Agency, 1979, p. 623-637;

Discussion, p. 637. 10 refs.

Plasma heating experiments using relativistic electron beams (part of a solenoid-based thermonuclear program) were carried out on the GOL-1 and INAR devices. Transport of a beam with current up to 55 kA in a multimirror magnetic field was obtained on the GOL-1 device without any indication of development of macroscopic instabilities. INAR experiments showed an increase in magnetic field up to 25 kOe and a decrease in the anode foil thickness down to 6 microns, making it possible to achieve 20% efficiency of energy transfer from the REB with a current density of 1 kA/sq cm to a plasma with a density of 4 x 10 to the 14th per cu cm at a plasma column length of 240 cm.

A80-17860 The KMSF laser fusion programme. R. L. Berger, P. M. Campbell, G. Charatis, J. G. Downward, T. M. Henderson, R. R. Johnson, T. A. Leonard, F. J. Mayer, D. Mitrovich, and N. K. Moncur (KMS Fusion, Inc., Ann Arbor, Mich.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 3-15. Contract No. ES-77-C-02-4149

Laser-driven implosion experiments have been performed at both 1.06 microns and 0.53 microns. The fractional absorption was greater at 0.53 microns although with the laser power available at 0.53 microns it was not possible to observe effects of a high-temperature corona. Other experiments were performed using cryogenic targets at 1.06 microns. It was found that the neutron yield and peak fuel densities were greater when the fuel formed a liquid or solid layer on the inside of the spherical glass-shell targets.

A80-17861 Inertial confinement fusion at NRL. S. E. Bodner, J. P. Boris, G. Cooperstein, S. A. Goldstein (U.S. Navy, Naval Research Laboratory, Washington, D.C.; Science Applications, Inc., McLean, Va.), D. Mosher, B. H. Ripin, R. Decoste (U.S. Navy, Naval Research Laboratory, Washington, D.C.; Maryland, University, College Park, Md.), J. H. Gardner, R. Lee, and R. H. Lehmberg (U.S. Navy, Naval Research Laboratory, Washington, D.C.; Jaycor, Inc., McLean, Va.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3.

Vienna, International Atomic Energy Agency, 1979, p. 17-28. 27 refs. Research supported by the U.S. Department of Energy.

The NRL Inertial Confinement Fusion Program's emphasis has moved toward pellet concepts which use longer (10 ns) lower intensity driver pulses than previously assumed. For laser drivers, this change was motivated by recent experiments at NRL with enhanced stimulated Brillouin backscatter. For ion drivers, the motivation is the possibility that substantial energy at 10-ns pulse lengths may soon be available. To accept these 10-ns pulses, it may be necessary to consider pellets of larger radius and thinner shell. The computational studies of Rayleigh-Taylor instability at NRL indicate the possibility of a dynamic stabilization of these thinner shells. (Author)

A80-17862 Recent progress in inertial confinement fusion research at the Los Alamos Scientific Laboratory. R. B. Perkins (California, University, Los Alamos, N. Mex.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3.

Vienna, International Atomic Energy Agency, 1979, p. 41-52; Discussion, p. 52. 13 refs. Research sponsored by the U.S. Department of Energy.

. Recent progress in the inertial confinement fusion programme at the Los Alamos Scientific Laboratory is reviewed. Helios, an eight-beam 10-kJ CO2 laser, became operational in April 1978 and has produced output powers exceeding 21 TW. Antares, a 100-kJ CO2 laser, is under construction and should permit breakeven experiments in 1983/84. Current and planned target experiments are discussed. Laser fusion power plants employing CO2 lasers are being studied to identify areas requiring early attention.

A80-17863 Work on laser interaction and implosion at Centre d'Etudes de Limeil. A. Bekiarian, E. Buresi, A. Coudeville, R. Dautray, F. Delobeau, P. Guillaneux, C. Patou, J. M. Reisse, B. Sitt, and J. M. Vedel (Commissariat à l'Energie Atomique, Centre d'Etudes de Limeil, Villeneuve-Saint-Georges, Val-de-Marne, France). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna. International Atomic Energy Agency, 1979, p. 65-72; Discussion, p. 72,73. 15 refs.

A80-17864 Experimental studies of interaction and transport processes in laser fusion. A. Amiranoff, R. Benattar, R. Fabbro, E. Fabre, C. Garban, C. Popovics, A. Poquerusse, C. Stenz, J. Virmont (Ecole Polytechnique, Palaiseau, Essonne, France), and R. Sigel. In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3.

Vienna, International Atomic Energy Agency, 1979, p. 75-85. 6 refs. The effect of laser wavelength and pulse shaping on interaction and the transport process is investigated. Experiments show that absorption increases with shorter wavelength, from 35% at 1.06 microns to 45% at 0.53 microns. The production of hot electrons is significantly reduced in short-wavelength experiments. The hot electron temperature determined from X-ray emission decreases from 8 keV at 1.06 microns wavelength to 2 keV at 0.53 microns, indicating a better thermal electron transport at shorter wavelength. The measurement of burn-through depth has confirmed this result, showing that at 0.53 microns this depth is almost three times larger than at 1.06 microns. Experiments with different types of prepulse show that there is a difference between discrete and continuous prepulse in backscattering and refraction effects, in favour of the continuous pulse shaping. It is also observed that pulse shaping enhances lateral thermal transport. (Author)

A80-17867 Developments in Sandia Laboratories particle beam fusion programme. G. Yonas (Sandia Laboratories, Albuquerque, N. Mex.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3.

Vienna, International Atomic Energy Agency, 1979, p. 125-132; Discussion, p. 132, 133. 21 refs. Research supported by the U.S. Department of Energy.

Recent developments in the fields of reactor design, target concepts and electron and light ion driver development in Sandia Laboratories' particle beam fusion program are reviewed. Requirements for a reactor in which several megavolt megampere electron or ion beams propagate within multiple magnetized plasma channels are discussed, and results of experiments with a target containing preheated fuel and magnetic fields for electron thermal conduction supression are presented, noting observed deposition enhancement and the coupled nature of electron focusing and deposition. Investigations of high-current-density electron and light ion drivers are outlined, and the use of multiple, compact pulse-forming modules in the 50-kJ range to achieve the multimegajoule beam levels required in both approaches is discussed.

A80-17868 Inertial confinement fusion research at Osaka. H. Azechi, H. Fujita, K. Imasaki, Y. Izawa, Y. Kato, Y. Kawamura, M. Matoba, K. Mima, S. Miyamoto, and Y. Mizumoto (Osaka University, Osaka, Japan). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 135-154; Discussion, p. 154. 7 refs.

A80-17869 Laser fusion implications of resonance absorption and associated electrostatic field pressure. T. P. Donaldson, J. E. Balmer, P. Wägli, and P. Lädrach (Bern, Universität, Berne, Switzerland). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 157-165. 31

Resonance absorption of laser radiation in plasma and some of its implications for laser fusion have been studied. The angular width of the resonance is shown to be broad enough to permit a non-critical incidence angle, which is important when laser radiation is focused onto the curved surface of a microsphere. For the range of parameters studied, the energy loss to non-thermal ions is found to be small. Modification of the electron density profile by the resonant electrostatic field pressure is shown to play an important role.

(Author)

A80-17870 Non-linear theory of collective processes in laser-pellet interaction and soliton generation. H. H. Chen, C. Grebogi, C. S. Liu, and V. K. Tripathi (Maryland, University, College Park, Md.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 181-186. 20

The paper proposes soliton generation through the ponderomotive force effect of large amplitude electrostatic waves generated locally around the resonance region as a saturation mechanism for collective processes in laser-pellet interaction. Collective processes involving the interaction of plasma and ion waves with laser waves affect the absorption and scattering of laser light and determine the efficiency of laser-pellet coupling. As a result of wave growth in a localized region, ponderomotive force tends to push the plasma out of the high intensity region, leading to the formation of soliton and density cavity. The local reduction of plasma density gives rise to a nonlinear frequency shift of the plasma wave, and it modifies the density profile affecting the growth of subsequent parametric instability. The roles of soliton formation in the resonance absorption at critical density, parametric decay into two plasmons, and Raman backscattering at quarter-critical density are discussed. A.T.

Wave absorption and superreflectivity of laser plasmas due to electromagnetic structure resonances. K. Sauer, K. Baumgärtel (Deutsche Akademie der Wissenschaften, Zentralinstitut für Elektronenphysik, Berlin, East Germany), and N. E. Andreev (Akademiia Nauk SSSR, Fizicheskii Institut, Moscow, USSR). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 187-199. 8 refs.

The interaction of normally incident electromagnetic waves of high intensity with an inhomogeneous plasma whose maximum density is above the critical one is investigated theoretically. Structure resonances can be formed self-consistently due to deformations of the plasma density profile which are produced by the ponderomotive force. During the resonance, the electromagnetic energy is temporarily trapped in a self-induced density cavity whereby the reflection coefficient decreases to values near zero. Simultaneously, the absorption coefficient reaches a maximum of about 50%. The rest of the energy is re-emitted when the resonance is destroyed. In this moment, peak values of the reflection coefficient greater than one can occur. The characteristic properties of these structure resonances have been studied analytically using a linear model in which the resonant density cavity is approximated by a step-like density profile (caviton model). (Author)

A80-17872 Theory of cavitons in laser-irradiated plasmas. K. H. Spatschek, M. Y. Yu, and P. K. Shukla (Bochum, Ruhr-Universität, Bochum, West Germany). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 201-208.

The propagation and absorption of laser light at the outer region of the corona as well as at critical density are crucially dependent on the density profile. For large intensities the density profile varies self-consistently through the radiation pressure and other nonlinear effects such as relativistic electron-mass variations. The paper deals with calculating the plasma density cavitation in different regions which can occur in laser fusion experiments. Two pertinent problems are considered: (1) density depression caused by mode-converted Langmuir waves in the critical region; and (2) density localization caused by the radiation pressure of very-high-power laser light. The results of large-scale density steepening are discussed. A new phenomenon of supersonic density humps is discovered.

A80-17873 The United States programme in heavy ion beam fusion. T. F. Godlove and D. F. Sutter (U.S. Department of Energy, Washington, D.C.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 211-222; Discussion, p. 222, 223. 12 refs.

Inertial confinement fusion relies on the rapid delivery of a large pulse of energy to a small heavy hydrogen mass, resulting in its compression and burn during a brief period of inertial confinement. Means that have been identified as promising for delivery of the required energy are lasers, electrons, light ions and, most recently, heavy ions. Although the requirements in terms of energy and power are similar for all delivery methods, the origin of the technology, the scientific and technical issues, and the projected characteristics of each method are quite different. Heavy ion fusion as a distince programme in the USA has been funded since early 1977. In this paper the pellet requirements and potential advantages of the method are described, followed by a discussion of the various scientific and technical aspects of accelerator design and beam transport which are being studied so that a more complete evaluation can be made together with other pellet drivers in the mid-1980s.

(Author)

A80-17874 Nuclear fusion by cylindrical ion implosion.

M. Gryzinski, J. Appelt, J. Baranowski, M. Bielik, E. Gorski, A. Horodenski, L. Jakubowski, A. Jerzykiewicz, J. Kurzyna, and J. Langner (Instytut Badan Jadrowych, Swierk, Poland). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 225-236. 11 refs.

The present status of investigations on ion-implosion fusion undertaken at the Institute of Nuclear Research, Swierk, Poland, in the early 1960s is presented. Since then several experiments on production of intense radially convergent ion beams have been carried out by means of cylindrical devices equipped with coaxial electrodes consisting of thin metal rods, placed symmetrically and parallel to the axis of symmetry. With these devices, supplied from condenser banks of energy 10 - 20 kJ operated at 30 kV initial voltage, deuteron beams have been produced in a few hundred nanosecond pulses with energy sometimes greater than 30 keV and intensity of the order of 10 kA. The production of energetic ions was accompanied by the production of neutrons, up to 5 times ten to the 8th n per discharge. It was found from X-ray observations that convergent ion beams are focused on the symmetry axis of the system so that the cross-section of the dense plasma is several millimetres in diameter. Investigations on a complete symmetric implosion by means of a 150-kJ device have begun. (Author)

A80-17875 Calculations of inertial confinement fusion gains using a collective model for reheat, bremsstrahlung and fuel depletion for highly efficient electrodynamic laser compressions. H. Hora, R. Castillo, R. G. Clark, E. L. Kane, V. F. Lawrence, R. D. C. Miller, M. F. Nicholson-Florence, M. M. Novak, P. S. Ray, and J. R. Shepanski (New South Wales, University, Kensington, Australia). In:

Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 237-245. 47 refs.

A80-17876 Low-aspect-ratio limit of the toroidal reactor-The spheromak. M. N. Bussac, M. N. Rosenbluth (Institute for Advanced Study, Princeton, N.J.), H. P. Furth, M. Okabayashi, and A. M. M. Todd (Princeton University, Princeton, N.J.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 249-264; Discussion, p. 264. 24 refs. Contracts No. EY-76-C-02-3073; No. E(11-1)-3237.

The ideal and resistive MHD stability properties of a class of toroidal plasma configurations ('spheromaks') having internal toroidal and poloidal fields and external poloidal fields are considered. The reactor advantage of the spheromak is two-fold: (1) the maximum field strength at the external coils is about half the field at the plasma centre, rather than twice, as in a tokamak, and (2) a roughly spherical blanket can be used, rather than a blanket that links the plasma topologically. Taylor's criterion, which ensures stability against both ideal and resistive modes, has been applied to force-free spheromaks of unity aspect ratio. In the presence of a loosely fitting external conducting shell, oblate spheromaks are stable against all modes except short-wave surface kinks (which are an artifact of the idealized current density profile). The Mercier criterion gives a beta-limit below 1%; however, at aspect ratio greater than or almost equal to 1, the beta-limit for representative spheromak models rises into the range 2-4%. (Author)

A80-17877 Boundary layer analysis of cold-blanket systems. B. Lehnert, B. Bonnevier, J. R. Drake, A. Kuthy, D. Ohlsson, E. Tennfors, and B. Wilner (Kungl. Tekniska Hogskolan, Stockholm, Sweden). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 265-275;

Discussion, p. 275, 276.

Theoretical analysis of the partially ionized boundary layer of a magnetized plasma indicates that a cold-blanket state exists only within restricted ranges of such parameters as the power input, the ion density, and the beta-value. In tokamaks, cold-blanket operation is likely to require total beta-values of at least a few per cent. Experimental investigations show that the plasma core density increases with the imposed power input, as long as the plasma is permeable to neutral gas. On the other hand, at large enough power inputs and ion densities to sustain in impermeable plasma, the core density becomes weakly dependent on both the power input and the neutral wall density, while the boundary layer thickness then decreases as the power input increases. (Author)

A80-17883

The Elmo Bumpy Torus /EBT/ reactor. N. A. Uckan, D. B. Batchelor, E. S. Bettis, R. A. Dandl, C. L. Hedrick, E. F. Jaeger, D. B. Nelson, L. W. Owen, R. T. Santoro (Oak Ridge National Laboratory, Oak Ridge, Tenn.), and D. G. McAlees (Oak Ridge National Laboratory, Oak Ridge, Tenn.; Exxon Nuclear Co., Inc., Bellevue, Wash.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 343-356. 21 refs. Contract No. W-7405-eng-26.

The EBT combines many of the most attractive features of both tokamaks and mirrors into an attractive reactor configuration: steady-state operation, potential for high beta, large aspect ratio, modular construction, favorable geometry for ease of maintenance, modest technology requirements, high Q value, and economic potential. Recent designs which incorporate the increased understanding from plasma research have lead to smaller reactors with easier and practical maintenance. Critical physics issues are discussed, and dimensionless parameter scalings are explored. S.D.

A80-17884 Impact of technology and maintainability on economic aspects of tokamak power plants. M. A. Abdou, C. C. Baker, J. Brooks, R. Clemmer, C. Dennis, D. Ehst, K. Evans, S. Harkness, R. Kustom, and V. Maroni (Argonne National Laboratory, Argonne, III.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3.

Vienna, International Atomic Energy Agency, 1979, p. 357-367; Discussion, p. 367, 368. 7 refs.

Results of system studies on the primary energy conversion, energy storage and transfer, tritium and vacuum subsystems of a tokamak reactor are presented. These results quantify technology choices and maintainability on the economics of tokamak power plants. It is found that the expensive refractory alloys must offer a factor of three or greater advantage in lifetime compared to stainless steel in order that their costly development should have a reasonable benefit-to-cost ratio. Five reactor concepts are analyzed in terms of their scheduled maintenance requirements for replacing the first wall and blanket. The total downtime is found to vary from approximately 100 days to 500 days for a single replacement of the entire first wall and blanket. Substantial reduction in the power supply requirements and costs over previous estimates seems possible. The emergency air detritiation system is found to be a major cost item.

(Author

A80-17885 Concept of tokamak-type reactor with high-temperature blanket. N. N. Vasil'ev, V. E. Lukash, A. V. Nedospasov, L. B. Nefedkina, V. G. Petrov, M. Z. Tokor (Akademiia Nauk SSSR, Institut Vysokikh Temperatur, Moscow, USSR), B. N. Kolbasov, D. K. Kurbatov, V. V. Orlov, and V. I. Pistunovich (Akademiia Nauk SSSR, Institut Atomnoi Energii, Moscow, USSR). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 379-386; Discussion, p. 386, 387. 9 refs.

A design study for a tokamak reactor with a high-temperature blanket is presented. It is expected that such a reactor, whose structure is more complicated than that of a low-temperature one, may be used as a source of high-temperature heat as well as for, e.g. hydrogen production from water. Parameters of such a device are given. (Author)

A80-17887 Tandem mirror reactors. B. G. Logan, W. L. Barr, D. J. Bender, G. A. Carlson, W. L. Dexter, J. N. Doggett, R. S. Devoto, T. K. Fowler, G. W. Hamilton (California, University, Livermore, Calif.), and J. F. Fink. In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 401-410; Discussion, p. 410, 411. 14 refs. Contract No. W-7405-eng-48.

Preliminary designs of tandem mirror fusion reactors burning D-T fuel and of fusion-fission (hybrid) tandem mirrors producing both fissile fuel and electricity have been made. For the hybrid reactor, it is found that, by using stream-stabilized, 2XIIB-like plugs and by injecting 200-keV deuterium beams into a tritium-plasma target confined electrostatically in the solenoid, a useful Q (fusion power/injection power) near unity is obtained. The D-T tandem reactor parameters are optimized to obtain the minimum capital cost per kW(e) net. To allow for more expensive injector costs, a higher D-T reactor Q of 10 is obtainable with increased power output or decreased neutron wall loading. Fokker-Planck calculations show steady-state Q of approximately 5 for D-D tandem reactors burning only deuterium fuel and its reaction products, with most of the charged-particle fusion power recovered in a direct converter.

(Author)

A80-17888 Fuel production characteristics of fusion hybrid reactors. R. P. Rose, T. C. Varljen (Westinghouse Electric Corp., Pittsburgh, Pa.), F. L. Ribe, N. J. McCormick, G. C. Vlases, G.

L. Woodruff (Washington, University, Seattle, Wash.), V. L. Teofilo, B. R. Leonard, Jr., D. T. Aase, and R. T. Perry (Battelle Pacific Northwest Laboratories, Richland, Wash.). In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3. Vienna, International Atomic Energy Agency, 1979, p. 413-418; Discussion, p. 419. 9 refs. Research supported by the Electric Power Research Institute; Contracts No. EG-77-C-02-4544; No. EN-77-3-01-6173; No. EY-76-C-03-0167.

The potential role of hybrid systems in the production of fuel for fission reactors is examined in the context of a possible serious fuel shortfall developing early in the next century. Various proliferation-resistant fuel-cycle options are considered, including the use of the Th/U233 fuel cycle and the Refresh Concept. It is concluded that the fusion hybrid reactor has a high potential to extend fuel resources for nuclear power stations. The hybrid concept also appears to offer the flexibility to operate with a variety of fuel-cycle options. Furthermore, a demonstration of fissile-fuel production in a hybrid based on the tokamak concept appears to be a feasible near-term goal. (Author)

A80-17893 Summary on inertial-confinement fusion. K. Nishikawa (Hiroshima, University, Hiroshima, Japan). (Nuclear Fusion, vol. 19, Jan. 1979, p. 137-142.) In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Vienna, International Atomic Energy Agency, 1973, p. 469-478.

It is noted that great progress has been made in recent years, particularly in understanding laser plasma coupling and the implosion process with the aid of various diagnostic developments. The paper summarizes the problems relevent to this progress by classifying them into three topics: (1) driver technology, (2) driver plasma coupling, and (3) implosion and target design. Finally, attention is given to some problems which need further investigation. In conclusion, it is stressed that international collaboration is of paramount importance, and that the classification policy followed in some countries may be a hindrance to timely progress of research.

MED

A80-17894 Summary on reactor systems. R. W. Conn (Wisconsin, University, Madison, Wis.). (Nuclear Fusion, vol. 19, Jan. 1979, p. 143-146.) In: Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volume 3.

Vienna, International Atomic Energy Agency, 1979, p. 479-485.

The papers at the Innsbruck Conference on reactor systems and technology dealt primarily with reactor design and plasma engineering. The present review covers four categories of reactor systems - tokamaks, magnetic confinement, nontokamaks, and

inertial confinement. Some special topics, such as plasma engineering and alternate applications of fusion, are examined. V.P.

A80-18086 The effect of current shear on the tearing instability. R. J. Barker and O. Buneman (Stanford University, Stanford, Calif.). *Journal of Plasma Physics*, vol. 22, Dec. 1979, p. 453-476. 20 refs. NSF Grant No. ENG-76-02402.

A fully relativistic stream superposition model is employed to conduct a linear numerical simulation of a self-consistently confined sheet of collisionless, neutral plasma. This multi-stream model employs a novel variable termed the 'canonical momentum potential' (or 'action function') to follow the ion and electron dynamics. For the classic, unsheared sheet pinch, growth rates obtained for the tearing instability are in reasonable agreement with previous estimates using an approximate Vlasov approach. Current shear is then introduced into the sheet and growth rates are again measured. Stabilization of the shorter wavelength modes is observed. (Author)

A80-18110 X-ray measurement of laser fusion targets using least squares fitting. R. M. Singleton, B. W. Weinstein, and C. D. Hendricks (California, University, Livermore, Calif.). *Applied Optics*, vol. 18, Dec. 15, 1979, p. 4116-4123. 10 refs. Contract No. W-7405-eng-48.

The paper presents an X-ray technique for measurement of opaque hollow microspheres used as laser fusion targets. Consideration is given to a nondestructive method for holding microspheres that enables microsphere rotation between X-ray exposures. Film images of the microspheres are recorded using contact microradiography. Computer image analysis is used for measurement of the microsphere characteristics, which involves mathematically modeling processes that relate the microsphere characteristics to film density and then applying a least squares fit of the model to the image data. This measurement is compared with the optical interferometric measurement for several glass microspheres and it is found that measurement differences are less than 0.3 micron for wall thickness and 0.1 micron for nonconcentricity. (Author)

A80-18111 Multichannel Thomson scattering system for the tokamak TFR based on two-detector spectrum analyzers. J. Lasalle and P. Platz (EURATOM and Commissariat à l'Energie Atomique sur la Fusion, Département de Physique du Plasma et de la Fusion Contrôlée, Fontenay-aux-Roses, Hauts-de-Seine, France). Applied Optics, vol. 18, Dec. 15, 1979, p. 4124-4133, 10 refs.

In actual and future large tokamaks, the electron temperature T(e) and density n(e) profiles must be measured with a single discharge and laser shot. To accomplish this, T(e) is deduced from the ratio of powers scattered into two large spectra intervals, while n(e) is deduced from the absolute power detected in one of the intervals and from the knowledge of T(e). The spectrometers designed for this purpose and their calibration are described. T(e), n(e) profiles are obtained in a single shot on TFR with a nine-channel scattering system based on these two-detector spectrometers.

(Author)

A80-18123 A method of estimating monthly average solar radiation on shaded receivers. D. M. Utzinger and S. A. Klein (Wisconsin, University, Madison, Wis.). Solar Energy, vol. 23, no. 5, 1979, p. 369-378. 9 refs. Research supported by the U.S. Department of Energy.

A80-18124 Analysis of systems for the generation of electricity from solar radiation. W. G. Pollard (Oak Ridge Associated Universities, Inc., Institute for Energy Analysis, Oak Ridge, Tenn.). Solar Energy, vol. 23, no. 5, 1979, p. 379-392. 8 refs.

An analysis relating the annual electrical output of any solar-electric facility directly to the effective annual insolation received on its solar collectors per unit collector area is presented. An expression for the capacity factor of such facility is derived through which the ratio of the actual annual electrical output to the maximum mean annual output without demand, generating and downtime reductions, and storage losses can be determined. Expressions are also derived for a solar availability factor which measures the ratio of the annual output of the solar facility to that of a fuel-fired plant. The capital cost of solar-electric facilities comprises cost of solar-electric generation, nonsolar auxiliary power, and storage, and the choice of solar collector area and of the relative dependence on storage and auxiliary nonsolar power are also discussed.

A80-18125 The impact of a conceptual solar thermal electric conversion plant on regional meteorological conditions - A numerical study. C. M. Bhumralkar, A. Slemmons (SRI International, Menlo Park, Calif.), and J. Williams (National Center for Atmospheric Research, Boulder, Colo.). Solar Energy, vol. 23, no. 5, 1979, p. 393-403. 8 refs. Research supported by the International Institute for Applied Systems Analysis and United Nations Environment Program.

A two-dimensional, mesoscale model of the atmosphere that incorporates hydrodynamic, thermodynamic, and microphysical

processes has been applied to simulate the impact on regional weather of a solar-thermal electric conversion (STEC) installation in southern Spain. The STEC plant is conceptualized to occupy an area of 1,000 sq km with heliostats covering 25 per cent of the total power plant area. It is assumed to use wet natural draft cooling towers for dissipating waste heat into the atmosphere. The 2-D model is applied to a STEC facility that covers a distance of 32 km in the horizontal with heliostats installed in the middle over a distance of 8 km. The model has been integrated for 9 hr of real time for both typical summer and winter conditions. The results of integration for summer indicate that a STEC installation of the above size has considerable potential for modifying regional weather. Clouds formed after 5 hr of real-time integration and persisted until the end of the integration; rainfall also occurred. In contrast, clouds did not form until 7 hr of real-time integration without the installation and were more sporadic and transient; rainfall was much less. The results for winter conditions do not show any cloud formation after 9 hr of real-time integration. This difference between summer and winter cases is attributed to the very strong winds used as initial conditions for the winter simulation. (Author)

A80-18126 Selective black nickel coatings on zinc surfaces by chemical conversion. P. K. Gogna and K. L. Chopra (Indian Institute of Technology, Delhi, India). Solar Energy, vol. 23, no. 5, 1979, p. 405-408. 11 refs.

A flat plate solar collector uses a selective coating to convert solar radiation into thermal energy that is transferred from the absorber to the working fluid. Spectral selectivity is possible because the solar spectrum and the spectral distribution of the thermal reradiation emitted from the coating are district, as illustrated elsewhere (Jurisson et al., 1975). An electrochemical conversion has been developed to deposit selective black nickel coatings of high absorptance-to-emittance ratio on galvanized iron as well as on zincated and zinc electroplated aluminum substrates. The paper reports on the microstructure and the optical and thermal properties of black nickel deposited on these zinc surfaces. The effect of various deposition parameters on the optical and thermal performance of the coatings is studied. Durability tests of thermal cycling, humidity tests and exposure to sunlight are carried out to evaluate the coatings.

S.D.

A80-18127 High temperature solar collector with optimal concentration - Non-focusing Fresnel lens with secondary concentrator. M. Collares-Pereira (Chicago, University, Chicago, III.). Solar Energy, vol. 23, no. 5, 1979, p. 409-420. 24 refs. Research sponsored by the Instituto Nacional de Investigação Científica.

A80-18128 Sensitivity of direct gain space heating performance to fundamental parameter variations. W. O. Wray and J. D. Balcomb (California, University, Los Alamos, N. Mex.). Solar Energy, vol. 23, no. 5, 1979, p. 421-425. 7 refs. Research sponsored by the U.S. Department of Energy.

Interest in passive solar space heating has increased steadily over the past few years. Much of this interest has centered on direct gain structures because they depart the least from conventional construction and are therefore more acceptable to the market. Construction of direct gain houses has proceeded in spite of the lack of well-validated design guidelines capable of quantifying expected thermal performance. In an effort to provide such guidelines, a thermal network code based on PASOLE is being developed specifically for direct gain systems. This new code is called SUNSPOT and is designed to operate at two levels of detail, depending on the needs of the user. Specifically, a computer program has been developed for analyzing the performance of direct gain passive solar heated enclosures. This computer program is validated by comparison with data from passive solar test cells. The direct-gain enclosure characteristics revealed by a sensitivity study are identified as design guidelines applicable to any climate.

A80-18129 Photovoltaic solar cell array used for supplemental power generation. A. S. Barker, Jr. (Bell Telephone Laboratories, Inc., Whippany, N.J.) and H. J. Power (AT & T, New York, N.Y.). Solar Energy, vol. 23, no. 5, 1979, p. 427-434. 6 refs.

A study of the performance of a silicon cell non-tracking photovoltaic array has been made over a three year period. The array provided power in parallel with commercial utility power in a shared mode which makes use of all the solar energy generated. Tests of degradation, dirt accumulation, compatability with telephone plant, and day by day performance were performed. A method is developed for predicting the energy output of a non-tracking array based on standard global insolation measurements. (Author)

A80-18130 Solar heating system performance estimation using sinusoidal inputs. M. S. Drew and R. B. G. Selvage (S-Matrix Enterprises, Ltd., Richmond, British Columbia, Canada). Solar Energy, vol. 23, no. 5, 1979, p. 435-442. 14 refs. Research supported by the British Columbia Ministry of Education, Science and Technology.

A method is presented for the estimation of the fraction of the heating load supplied by solar energy during the heating season. This procedure remains useful even when system design parameters are far from the norm, and in particular is applicable to systems incorporating seasonal storage of heat. Insolation, temperature and hot water demand are input as sinusoids, and the closed-form solution of the heat transfer differential equation is found. The method as presented here is suitable for domestic hot water and liquid space heating systems. (Author)

A80-18131 An electrochemical heat engine for direct solar energy conversion. R. H. Hammond and W. M. Risen, Jr. (Brown University, Providence, R.I.). Solar Energy, vol. 23, no. 5, 1979, p. 443-449. Research supported by the Research Corp.

A system is described and tested which converts heat directly into electrical energy. It employs a solution electrochemical reaction with a small polarizability and a large molar entropy change. This is run in opposite directions in two cells: one at high temperature, where heat is absorbed, and one at low temperature, where heat is emitted. The difference in heat absorbed and heat emitted is available as electrical work; recirculation of the solutions between these cells gives a closed regenerative EMF system. The conversion efficiency of the system is high, varying from 50 to 75 per cent of the Carnot efficiency as the power output varies from maximum to 75 per cent of maximum. The power output depends strongly upon the reaction used. For the reaction tested here, the power output density was 6.4 W/sq m of cell area for operation between 90 and 30 C. Design factors for improving power output density and minimizing costs are discussed, and basic requirements for successful cell reactions are given. The feasibility of obtaining power output on the order of 200 W/sq m of cell area at 35 per cent conversion efficiency using 300 C input heat is discussed. (Author)

A80-18132 Performance and analysis of a 'series' heat pump-assisted solar heated residence in Madison, Wisconsin. R. E. Terrell (Wisconsin, University, Madison, Wis.). Solar Energy, vol. 23, no. 5, 1979, p. 451-453. 6 refs.

A80-18133 A simplified technique for comparing the effectiveness of collector absorber coatings. R. K. Collier (California, University, Los Alamos, N. Mex.). Solar Energy, vol. 23, no. 5, 1979, p. 455-458. Research sponsored by the U.S. Department of Energy.

It is noted that there has been some confusion about how to rate the performance of selective surface absorbers. Edwards et al. (1962) developed a concept called the 'absorptance of merit' for comparing selective surfaces. This concept was further developed to demonstrate the comparison of various surfaces for varying environmental conditions. The present paper is an attempt to take that previous work and formulate a universal graphical concept that requires a minimum of calculation for comparing the relative effectiveness of various selective surfaces. It is noted that while the best way to judge the relative effectiveness of various absorber coatings is to perform a yearly simulation of collector performance,

the scheme described is a simple and effective alternative. It is concluded that the advantage of this scheme is that the relative trade-offs are displayed visually for quick reference. M.E.P.

A80-18137 Influence of the loading factor on the performance characteristics of series MHD generators. G. P. Bazarov, E. N. Kufa, and S. A. Medin. (Magnitnaia Gidrodinamika, Apr.-June 1979, p. 99-104.) Magnetohydrodynamics, vol. 15, no. 2, Oct. 1979, p. 193-197. Translation.

Local and integral characteristics of singly loaded series MHD generators operating under partial loads are investigated. Two-dimensional channels with perfectly sectioned electrodes having different types of sectional connection are considered. The flow parameters and channel height are assumed to be constant, and the calculations are performed by the finite-difference technique. It is shown that in the region where the current-collecting electrodes join a sectioned part of the channel, a significant increase in electric-field density is possible when the load factor is changed.

F.G.M.

A80-18138 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system. A. M. Anisimov, V. F. Vasil'ev, I. V. Lavrent'ev, and V. L. Ovchinnikov. (Magnitnaia Gidrodinamika, Apr.-June 1979, p. 136, 137.) Magnetohydrodynamics, vol. 15, no. 2, Oct. 1979, p. 220, 221. Translation.

An equation is obtained which describes the distribution of the magnetic field induced in a conducting medium when that medium moves in the transverse field of an air-core magnetic system. It is shown that the channel height, rather than its width (as is the case for ferromagnetic systems), is the characteristic linear dimension involved in the magnetic-Reynolds-number determination. Experiments performed with electrically conducting films moving in the field of two Helmholtz coils are discussed which demonstrate that the experimental data are in completely satisfactory agreement with a computer-aided solution to the equation obtained.

A80-18139 Characteristics of series channels with a diminishing electrode-commutation angle in the transition section. G. P. Bazarov and E. N. Kufa. (Magnitnaia Gidrodinamika, Apr. June 1979, p. 138-140.) Magnetohydrodynamics, vol. 15, no. 2, Oct. 1979, p. 222-224. Translation.

Local and integral characteristics of singly loaded series MHD generators with a reduced electrode commutation angle in the connecting section are investigated. Boundary-value problems for two-dimensional channels with constant flow properties and a magnetic field that varies along the channel are solved by the finite-difference method; the parameters of the solution are the position of the channel with respect to the magnetic field and the connecting-section geometry. It is shown that the integral characteristics of the generators considered are not degraded under rated operating conditions and that channels with a smaller commutation angle are more stable under alternate operating conditions. F.G.M.

A80-18162 Ocean energy - Forms and prospects, J. D. Isaacs and W. R. Schmitt (California, University, La Jolla, Calif.). *Science*, vol. 207, Jan. 18, 1980, p. 265-273. 48 refs.

The primary nonpetroleum power sources of the sea can be classified as mechanical (waves, tides and currents), chemical (salinity gradients and biomass), and thermal (temperature gradients, including ice). Power potential of each of these sources, their particular characteristics, geographic distribution, energy density and feasibility of practical utilization are analyzed. Waves, tides and currents are already employed to produce power. Examples of some existing practical devices which utilize tidal and wave power are: wave pumps, Salter's Duck power plants, and tidal power plants. Different approaches to utilizing other marine power sources are discussed. The complexity of practical devices for the extraction of power seems to vary with energy density, the salinity gradient requiring the most complex approaches and the currents the simplest. Even more important than direct utilization of ocean energy may be the use of seawater as a coolant and of the sediments below the seabed for the disposal of nuclear wastes. V.L.

A80-18165 Net energy analysis of alcohol production from sugarcane. C. S. Hopkinson, Jr. and J. W. Day, Jr. (Louisiana State University, Baton Rouge, La.). *Science*, vol. 207, Jan. 18, 1980, p. 302-304. 23 refs. NOAA-supported research.

Energy requirements were calculated for the agricultural and the industrial phase of ehtyl alcohol production from sugarcane grown in Louisiana. Agricultural energy requirements comprised 54 percent of all energy inputs, with machinery, fuel, and nitrogen fertilizer representing most of the energy subsidies. Overall net energy benefits (output:input) for alcohol production ranged from 1.8:1 to 0.9:1 depending on whether crop residues or fossil fuels were used for industrial processes. (Author)

A80-18167 Linear synchronous motor development for urban and rapid transit systems. H. Weh (Braunschweig, Technische Universität, Braunschweig, West Germany). (Institute of Electrical and Electronics Engineers and American Institute of Physics, Joint International Magnetics Conference and Conference on Magnetism and Magnetic Materials, 2nd, New York, N.Y., July 17-20, 1979.) IEEE Transactions on Magnetics, vol. MAG-15, Nov. 1979, p. 1422-1427. 6 refs.

The following paper presents and discusses technical variants in magnetic suspension-repelling permanent magnets, electrodynamic and electromagnetic suspension methods, controlled lift magnets. In addition, propulsion methods for magnetically suspended vehicles are also shown. The synchronous long stator linear motor has achieved particular importance since it makes possible an efficient energy conversion. The load-carrying capacity is not reduced by the weight of the drive and the layout enables a very good integration of the lift and thrust functions. A further reduction of the on-board power requirements can be achieved by using permanent magnets to generate the rated induction in the air gap. Several magnetic suspension systems constructed or under construction with the long stator method are also mentioned. (Author)

A80-18184 Electric heat - The right price at the right time.
J. G. Asbury, R. F. Geise, and R. O. Mueller (Argonne National Laboratory, Argonne, III.). *Technology Review*, vol. 82, Dec.-Jan. 1980. p. 32-40. 5 refs.

Four general types of efficient off-peak electric heating systems which could be commercialized in the U.S. for home heating as an alternative to gas and fuel oil systems are discussed. The four types could work through the introduction of lower off-peak rates. Electric storage heating systems use a storage medium (refractory brick, cast iron, water) to store off-peak electric energy in thermal form for application during peak hours. In bivalent heating systems oil- or gas-fired furnaces substitute for the electric heat during periods of high electricity demand. Electric heat pumps use a compressionexpansion cycle to transfer about two units of thermal energy from outdoor to indoor air for each unit of electric energy consumed. Finally, electric heating is used as backup for residential solar heating systems. Advantages and limitations of each of the heating systems are discussed. A computer model is used to analyze the performance characteristics and operation costs of the heating systems and numerical results are presented. V.L.

A80-18213 A performance and current distribution model for scaled-up molten carbonate fuel cells. V. Sampath, A. F. Sammells (Institute of Gas Technology, Chicago, III.), and J. R. Selman (Illinois Institute of Technology, Chicago, III.). *Electrochemical Society, Journal*, vol. 127, Jan. 1980, p. 79-85. 11 refs.

The performance of scaled-up (100 sq cm) fuel cells with cross flow of fuel and oxidant has been modeled using the polarization characteristics of small-scale (3 sq cm) fuel cells. The model also yields the two-dimensional (superficial) current distribution. The performance predicted by the model approximates to within 4% the experimental data if a suitable average value is assigned to the effective cell impedance. The latter depends on the inlet gas composition but does not vary much with the current; its value may be estimated from small-scale cell data. Carbon monoxide conversion contributes appreciably to the performance of low Btu cells; it tends

to make the current distribution less uniform. The presence of methane must be considered in pressurized cells, but it does not appear to be formed to a significant extent. The relative contribution of mass transfer and kinetic resistance to the cell impedance are discussed in light of recent experimental results. (Author)

A80-18214 Power conversion efficiency monitoring in photoelectrochemical and other solar cells. B. Miller (Bell Telephone Laboratories, Inc., Murray Hill, N.J.). Electrochemical Society, Journal, vol. 127, Jan. 1980, p. 184-188. 7 refs.

A device is described which incorporates a superimposed acvoltage signal, current-voltage product generation, synchronous detection, and a feedback loop to bias a photovoltaic converter to its point of maximum power output. Examples of its operation as continuous monitor of power conversion efficiency are given for pn junction and photoelectrochemical cells. Applications to studying the design fundamentals of the latter are illustrated, based on control derived with two- and three-electrode configurations to evaluate response to efficiency determining parameters such as light intensity and mass transport in the cell. The circuit stably responds with the average values of power output under periodically interrupted light up to at least 10 Hz. These characteristics open the way to external power conversion spectroscopy in the ultraviolet to near infrared range. (Author)

A80-18231 Relating computer simulation studies with interface state measurements on MIS solar cells. J. K. Kim (RCA David Sarnoff Research Center, Princeton, N.J.), W. A. Anderson (New York, State University, Buffalo, N.Y.), and S. Hyland. *IEEE Transactions on Electron Devices*, vol. ED-26, Nov. 1979, p. 1777-1782. 18 refs. Research supported by the Rutgers Research Council; NSF Grant No. AER-73-03197.

A lock-in-amplifier technique has been used to measure interface state density (N-ss) values ranging from 2 x 10 to the 11th to -3 x 10 to the 13th states/sq cm eV depending on energy in the gap, type of Si substrate, and choice of Schottky metal used in MIS diodes. Polycrystalline, ribbon, and (100) single-crystal Si substrates with 40-60 interfacial oxides have been tested using Cr, Al, Ti, and Cu as Schottky metal. A computer simulation is used to predict the influence of interface states, interfacial oxide thickness, and Schottky metal on open-circuit voltage. The influence of Schottky metal on open-circuit voltage is also clearly seen. Very close agreement is shown between experimental and theoretical data to permit design of more efficient MIS solar cells. (Author)

A80-18240 # An in-situ optical particle sizing technique. D. J. Holve (Stanford University, Stanford, Calif.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0020. 10 p. 28 refs. Research supported by the Electric Power Research Institute; Contracts No. EEF-77-C-03-1481; No. N00014-79-C-0318.

This paper discusses the application of an in-situ optical counter to the measurement of liquid fuel droplets and solid coal particles under combustion conditions. Mie theory computations are used to determine an optimal near-forward light-scattering geometry for sizing both spherical transparent particles and irregularly shaped light-absorbing particles in the 5-80 micron range. Results are presented for a burning methanol spray and for reacting coal particles. (Author)

A80-18242 # High interaction subsonic MHD channel operation. R. Kessler, A. W. McClaine, and A. Solbes (Avco Everett Research Laboratory, Inc., Everett, Mass.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0022. 9 p. 5 refs. Contract No. EF-77-01-2519. Analytical and experimental investigations were conducted into the subsonic operation of MHD generator channels. Experiments were performed with a combustion-driven MHD channel in which transitions from supersonic flow to subsonic flow and vice versa were caused by varying the magnetic field strength. Subsonic operation under various conditions was verified by increases in combustor pressure with increases in magnetic field. Experimentally measured operating parameters were compared with predictions. Satisfactory agreement was generally found. (Author)

A80-18243 \* # Results of duct area ratio changes in the NASA Lewis H2-O2 combustion MHD experiment. J. M. Smith (NASA, Lewis Research Center, Cleveland, Ohio). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0023. 7 p.

MHD power generation experiments utilizing a cesium-seeded H2-O2 working fluid have been carried out using a diverging area Hall duct having an entrance Mach number of 2. The experiments are conducted in a high-field strength cryomagnet facility at field strengths up to 5 tesla. The effects of power takeoff location, generator loading, B-field strength, and electrode breakdown voltage have been investigated. In this paper the effect of area ratio, multiple loading of the duct, and duct location within the magnetic field are considered. (Author)

A80-18265 # Coal-fired open cycle MHD combustion plasmas - Chemical equilibrium and transport properties workshop results. L. D. Sullivan, J. E. Klepeis (U.S. Department of Energy, Magnetohydrodynamics Div., Germantown, Md.), W. J. Coderre (Dynatrend, Inc., Woburn, Mass.), and W. H. Fischer (Gilbert/Commonwealth, Reading, Pa.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0091. 7 p.

For electrical power generation utilizing a high temperature alkali-seeded coal combustion plasma, the certainty of high electrical conductivity in the presence of coal ash and trace impurities is vitally important, especially for use in extrapolation of existing designs to higher power levels, as envisioned for commercial applications. The paper surveys the results of the workshop which provides an industry wide overview of the computational methods and analyses that are currently in use. Attention is given to uncertainty bands for plasma electrical conductivity. Also discussed are other issues such as coal, slag, seed, and conductivity. Finally, the paper gives suggested areas for further work.

M.E.P.

A80-18191 Estimation of OH radical concentration in a propylene-NOx-dry air system. H. Akimoto, F. Sakamaki, G. Inoue, and M. Okuda (National Institute for Environmental Studies, Ibaraki, Japan). Environmental Science and Technology, vol. 14, Jan. 1980, p. 93-97. 17 refs.

A80-18297 \* # Advanced solar thermal receiver technology. A. A. Kudirka and L. P. Leibowitz (California Institute of Technology, Jet Propulsion Laboratory, Pasadena, Calif.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0292. 10 p. 6 refs. Research sponsored by the U.S. Department of Energy.

Development of advanced receiver technology for solar thermal receivers designed for electric power generation or for industrial applications, such as fuels and chemical production or industrial process heat, is described. The development of this technology is focused on receivers that operate from 1000 F to 3000 F and above. Development strategy is mapped in terms of application requirements, and the related system and technical requirements. Receiver performance requirements and current development efforts are covered for five classes of receiver applications: high temperature, advanced Brayton, Stirling, and Rankine cycle engines, and fuels and chemicals. (Author)

A80-18298 \* # Performance characteristics of point-focusing distributed-receiver solar Brayton systems. N. El Gabalawi (California Institute of Technology, Jet Propulsion Laboratory, Solar Thermal

Energy Systems Group, Pasadena, Calif.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0293. 9 p. 10 refs. Research sponsored by the U.S. Department of Energy.

Due to variations in solar insolation, it may be necessary or desirable to operate solar energy systems continuously in off-design conditions. Design of solar energy systems should maximize system efficiency at the design point and throughout the range of operational solar insolation. The solar power system considered in this study consists of a point-focusing concentrator, a cavity receiver, an open cycle gas turbine engine, and a heat regenerator. A computer simulation model was developed to predict off-design system performance. Results showing system efficiency and associated subsystems interface requirements are presented for various turbine inlet temperatures and engine speeds. (Author)

A80-18299 # Use of adjustable flat mirrors with flat-plate collectors. D. C. Larson (Drexel University, Philadelphia, Pa.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0294.8 p. 14 refs.

Flat mirrors are frequently used to increase the heat output from flat-plate collectors. They are generally oriented in an east-west direction and are mounted below and/or above the collector panels. The annual performance of a mirror-boosted system can be improved by allowing periodic adjustments of the mirrors alone or of the panel-mirror units. In order to compare different mirror-panel configurations their solar flux concentration ratios are averaged over a yearly period using the solar elevation angle time probability function. All configurations have the same ratio of mirror area to panel area. In general it is found that the mirror orientations are more important than the panel orientations. Seasonal adjustments of the mirrors suffice to maintain acceptable values of the concentration and there is relatively little advantage in providing for collector panel adjustments. For year-round collection semiannual mirror adjustments provide a marked increase in output relative to fixed configurations. A double-mirror system (adjustable trough) provides higher concentrations than a single-mirror system for equal mirror area. Adjustable trough configurations with zero acceptance angle provide higher annual average concentration ratios than those with non-zero acceptance angles. (Author)

A80-18300 # A new solar thermal electricity/cooling generation system. J. T. Pytlinski and J. Cherng (New Mexico State University, Las Cruces, N. Mex.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0296. 7 p. 20 refs.

The paper presents the results of a basic thermodynamic and economic study of a combined solar thermal electricity generation and refrigeration system employing a Rankine cycle or refrigeration cycle respectively. The study demonstrates the technical and economical feasibility of retrofitting a water-ammonia solar powered absorption refrigeration system with a turbine and electric generator for the purpose of electricity generation. Through optimization of the system, an increase in the solar energy conversion efficiency and a decrease in the payback period could be expected. (Author)

A80-18301 \* Experimental results of the solar heating system on the LSU field house. D. Maples (Louisiana State University, Baton Rouge, La.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0297. 6 p.

Presented in this paper is an analysis of a solar heating system installed on the Lousiana State University Field House. A comparison between predicted performance and actual performance of the flat-plate collectors is discussed. The measured storage tank temperatures, solar insolations, and mean plate temperatures are presented as a function of the time of day for a given day and as three day averages. (Author)

A80-18303 \* # Thermal barrier coatings for aircraft gas turbines. R. A. Miller, S. R. Levine, and S. Stecura (NASA, Lewis Research Center, Cleveland, Ohio). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0302. 6 p. 13 refs.

Improvements in gas turbine performance are approaching the limits imposed by alloy properties and excessive cooling air requirements. Thin ceramic coatings can increase the difference between gas temperature and metal temperature by several hundred degrees. Thus, they are potentially a major step forward in surface protection. These coatings offer the potential to reduce fuel consumption by permitting reduced coolant flow or higher turbine inlet temperature or to improve durability by reducing metal temperatures and transient thermal stresses. At NASA Lewis, in-house and contractual programs are in place to bring this promising technology to engine readiness in the early 1980's. Progress towards this goal is summarized in this paper.

(Author)

A80-18353 # Integral modeling of MHD channel boundary layers. J. Gertz, T. Opar, A. Solbes, and G. Weyl (Avco Everett Research Laboratory, Inc., Everett, Mass.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0175. 11 p. Contract No. EF-77-01-2519.

New families of profiles are presented which are suitable for integral modeling of MHD electrode wall and side wall boundary layers. In the case of electrode walls, the total enthalpy profile is well represented by a cubic in velocity, which depends parametrically on the wall heat flux. Voltage drops are seen to first increase and then decrease with current density and channel size. For insulator walls, the proposed velocity profiles depart nearly linearly from classical power law profiles. Calculations for a typical subsonic CDIF channel show good agreement with the two dimensional code STAN-5. The effect of boundary layers on generator efficiency is discussed.

(Author)

A80-18354 \* # Off-design performance analysis of MHD generator channels. D. R. Wilson and T. S. Williams (Texas, University, Arlington, Tex.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0176. 13 p. 16 refs. Grant No. NsG-3255:

A computer code for performing parametric design point calculations, and evaluating the off-design performance of MHD generators has been developed. The program is capable of analyzing Faraday, Hall, and DCW channels, including the effect of electrical shorting in the gas boundary layers and coal slag layers. Direct integration of the electrode voltage drops is included. The program can be run in either the design or off-design mode. Details of the computer code, together with results of a study of the design and off-design performance of the proposed ETF MHD generator are presented. Design point variations of pre-heat and stoichiometry were analyzed. The off-design study included variations in mass flow rate and oxygen enrichment. (Author)

A80-18355 # Convective heat transfer in MHD channels and its influence on channel performance. R. K. Ahluwalia and E. D. Doss (Argonne National Laboratory, Argonne, III.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0178. 12 p. 16 refs.

The limitations of the integral boundary layer methods and the potential of the differential boundary layer method in analyzing MHD channel flows are assessed. The sensitivity of results from the integral method to the parametrization of boundary layer profiles and calculation of wall heat transfer is established. A mixing-length type turbulence model for flow on rough walls is developed and validated by comparison with experimental data. The turbulence model is used in a quasi-three-dimensional boundary layer model to evaluate the influence of wall roughness and pressure gradients on the flow characteristics and performance of MHD channels. The behaviors of skin friction and Stanton number calculated from the

analytical model are found to differ considerably from the empirical correlations valid for non-MHD flows without pressure gradients.

(Author)

A80-18366 # Design of heat pipe cooled laser mirrors with an inverted meniscus evaporator wick. K. T. Feldman, Jr. (New Mexico, University, Albuquerque, N. Mex.) and D. L. Noreen (Solar Energy Research Institute, Golden, Colo.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0148. 7 p. 6 refs. Contract No. F29601-76-C-0132.

The heat pipe laser mirror is cooled by evaporation of a liquid from a porous wick on the backside of the mirror. The liquid is distributed over the surface by the capillary wick, eliminating the need for a liquid pump, piping, heat exchanger, and pumping power. Thus the heat pipe cooled mirror can be particularly valuable where compact, light weight, high heat flux mirrors are required. In this report an analysis of the hydrodynamic performance limits of a flat plate heat pipe evaporator is described. A thin copper plate is heated on one side and cooled on the other by evaporation of water from fine grooves fed by a liquid transport wick. This type of evaporator wick is known as the inverted-meniscus heat pipe evaporator. The analysis includes determination of the wicking limit for three composite wick designs and gives the optimum wick dimensions.

(Author)

A80-18378 # Osmotically pumped energy transport system.
A. Basiulis and D. J. Formiller (Hughes Aircraft Co., Torrance, Calif.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0210. 5 p. 6 refs.

An osmotic heat pipe using commercially available membranes has been constructed and its continuous operation demonstrated. Principles of operation and technology status are considered along with polarization concentration effects, flow control, leakage through a membrane, and solute carryover. Evaluation of potential applications indicates that totally passive energy transport systems can be developed for applications such as deicing of leading edges of aircraft wings, helicopter rotor blades, cooling of electronics, and solar heating and cooling of buildings.

V.T.

A80-18379 # Performance testing of a hydrogen heat pipe.
J. Alario and R. Kosson (Grumman Aerospace Corp., Bethpage, N.Y.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0212. 9 p.

Test results are presented for a reentrant groove heat pipe with hydrogen working fluid. The heat pipe became operational between 20 and 30 K after a cooldown from 77 K without any difficulty. Steady-state performance data taken over a 19 to 23 K temperature range indicated the following: (1) maximum heat transport capacity = 5.4 W·m; (2) static wicking height = 1.42 cm; and (3) overall heat pipe conductance = 1.7 W/C. These data agreed remarkably well with extrapolations made from comparable ammonia test results. The maximum heat transport capacity is 9.5% larger than the extrapolated value, but the static wicking height is the same. The overall conductance is 29% of the ammonia value, which is close to the ratio of liquid thermal conductivities (24%). Also, recovery from a completely frozen condition was accomplished within 5 min by simply applying an evaporater heat load of 1.8 W. (Author)

A80-18505 The use of oil shale for SO2 emission control in atmospheric-pressure fluidized-bed coal combustors. W. I. Wilson, R. B. Snyder, and I. Johnson (Argonne National Laboratory, Argonne, III.). I & EC - Industrial and Engineering Chemistry, Process Design and Development, vol. 19, Jan. 1980, p. 47-51. 9 refs. Research sponsored by the U.S. Department of Energy.

Oil shale-SO2 reactivity, determined with a thermogravimetric analyzer, was used to estimate the quantity of oil shale required to

reduce SO2 concentration in the effluent gas sufficiently to meet the SO2 emission standard in atmospheric-pressure fluidized-bed coal combustion (AFBC). It was calculated that the oil shale could reduce the SO2 concentration in the effluent gas from FBC units below the SO2 emission limit. In evaluating virgin oil shale and spent oil shale for SO2 emission control, they were compared with (1) Germany Valley limestone, (2) Greer Limestone, and (3) Tymochtee dolomite. The results indicate that more oil shale than limestone or dolomite may be required to meet the SO2 emission standard since the calcium content of the shale is relatively low. The attrition rate of Green River oil shale was similar to attrition rates of limestones and dolomites. (Author)

A80-18552 # Economic comparisons of solar and fossil total energy systems for industrial applications. G. D. Pine (Oak Ridge National Laboratory, Oak Ridge, Tenn.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/TS-6. 8 p. 7 refs. Members, \$1.50; nonmembers, \$3.00. Contract No. W-7405-eng-26.

Four industrial application case studies were completed comparing fuel cell, diesel, and solar central receiver total energy systems with boiler and grid-electric systems. All total energy systems save significant quantities of fuel compared with separate supply of electricity and heat. However, the fuel cell and diesel systems require natural gas and oil, respectively, and while using less total fuel, they may substitute the use of these fuels for more plentiful coal or uranium. Solar total energy systems, on the other hand, reduce not only total fuel consumption, but also the oil and gas consumption. Solar systems are relatively capital intensive, but show significant economies of scale. They were found to compete well with the other systems in sizes larger than two to three MWe, but not so well for smaller sizes. (Author)

A80-18553 \* # Optimization of a point-focusing, distributed receiver solar thermal electric system. R. L. Pons (Ford Aerospace and Communications Corp., Aeronutronic Div., Newport Beach, Calif.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-11. 10 p. Members, \$1.50; nonmembers, \$3.00. Contract No. JPL-955115.

This paper presents an approach to optimization of a solar concept which employs solar-to-electric power conversion at the focus of parabolic dish concentrators. The optimization procedure is presented through a series of trade studies, which include the results of optical/thermal analyses and individual subsystem trades. Alternate closed-cycle and open-cycle Brayton engines and organic Rankine engines are considered to show the influence of the optimization process, and various storage techniques are evaluated, including batteries, flywheels, and hybrid-engine operation.

(Author)

A80-18554 # Solar-powered liquid-metal MHD power systems. E. S. Pierson, G. Fabris, C. B. Reed (Argonne National Laboratory, Argonne, III.), and H. Branover (Argonne National Laboratory, Argonne, III.; Negev, University, Beersheba, Israel). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-22. 8 p. 15 refs. Members, \$1.50; nonmembers, \$3.00. Research supported by the Ministry of Energy of Israel; Contract No. W-31-109-eng-38.

The two-phase liquid-metal MHD power cycles coupled to solar collectors have potentially a higher efficiency of converting solar energy input into useful electrical power output for all collector temperatures. The MHD interaction is a volume effect, so that efficiency is essentially independent of design power level down to fractional-megawatt size, and the performance is attractive even at approximately 50 kWe size. The use of two working fluids in the energy-conversion system is advantageous in coupling the conversion cycle to solar collectors and direct-contact boilers can be used to obtain, higher conversion system temperatures. Two liquid-metal MHD systems of interest for solar collectors are presented and explained. Liquid metal MHD conversion systems appropriate to low, intermediate, and high collector temperatures are described along with initial efficiency and cost results. (Author)

A80-18555 # A simplified procedure for performance of solar systems with heat pumps. F. Osterle, A. Murphy (Carnegie-Mellon University, Pittsburgh, Pa.), A. Salehpour, and P. Vercaemert. American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-23. 12 p. 11 refs. Members, \$1.50; nonmembers, \$3.00.

A simple procedure is described and assessed for determining the annual heating and cooling energy requirements of a hypothetical small residential building in Pittsburgh, PA by four methods: (1) direct solar plus auxiliary for heating and heat pump for cooling, (2) unassisted heat pump plus auxiliary, (3) and (4) two solar heat pump combinations. The procedure used average daily temperatures and insolation for each month. The emphasis of the paper is on the modeling procedures developed rather than on the specific results presented. The use of the simplified procedure provides good results with great time saving compared to hour-by-hour performance modeling. (Author)

A80-18556 # Simulation of solar-assisted urban sewage digestion. T. Newell and R. Boehm (Utah, University, Salt Lake City, Utah). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-36. 5 p. 8 refs. Members, \$1.50; nonmembers, \$3.00. Research supported by the Envirotech Corp.

In the present work, it was desired to simulate the quantitative aspects of solar augmentation of sewage digestion. Three solar-assisted configurations where heat is exchanged with combinations of the influent stream and the digestor were investigated in this study. The three systems were modeled using a solar computer simulation program developed at the University of Utah. This simulation program performs half hour calculations of system energy flows. Year-long performance is summarized for solar and ambient temperature variations that are set by long-term averages while maintaining particular year variations. Typical urban sewage digestion plant designs for the location of Atlanta, Georgia, were used in the simulations. Plots of the solar system performance versus solar system size are presented for the three system configurations. Comparisons are made to residential system simulations. (Author)

A80-18557 # Utilization of heavy fill gases in annular solar receiver geometries for heat loss reduction. A. C. Ratzel (Sandia Laboratories, Albuquerque, N. Mex.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-18. 8 p. 11 refs. Members, \$1.50; nonmembers, \$3.00. Contract No. DE-AC04-76DP00789.

Analytical and experimental work has investigated reducing thermal conduction and natural convection heat losses in annular solar receiver geometries using high molecular weight fill gases. Gases analyzed in a Sandia Laboratories prototype receiver design included nitrogen, argon, krypton, xenon, sulfur hexafluoride, and Freon C-318 R. Experimental results indicate that high molecular weight monatomic gases can reduce receiver heat loss by nearly 50 percent, comparable to annulus gas evacuation to the 5.0 to 0.5 Pa range. Computer simulation studies show that heavy gas utilization in the annular space can improve overall collector performance by 4.5 to 13.5 percent, depending upon the gas and annulus pressure. (Author)

A80-18558 # Heat transfer analysis of receivers for a solar concentrating collector. M. P. Rice, M. F. Modest, D. N. Borton, and W. E. Rogers (Rensselaer Polytechnic Institute, Troy, N.Y.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-20. 5 p. 7 refs. Members, \$1.50; nonmembers, \$3.00.

The heat transfer characteristics and performance of conically wound, single-layer monotube receivers for a concentrating solar collector are investigated. A discussion of methods and assumptions used to formulate the basic energy balances is presented. Results obtained from this analysis indicate the degree of sensitivity of performance to variations in tube radius, inlet temperature, ambient temperature, absorptivity of the tube coating, and cone half-angle within receiver size and mounting limitations. (Author)

A80-18559 # Computer simulation results for planar reflectors and flat plate solar collectors. F. A. Rudloff, S. R. Swanson, and R. F. Boehm (Utah, University, Salt Lake City, Utah). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-37. 8 p. 14 refs. Members, \$1.50; nonmembers, \$3.00.

The benefits attributed to reflectors for increasing performance of flat plate collectors vary quite widely in the literature. In the present study, a detailed computer simulation is carried out to investigate the increase in performance. The results show that: (1) collectors should be placed at higher tilt angle than usual; (2) reflectors placed in front of the collectors can be tilted up 5 or 10 deg; and (3) performance has a broad peak with respect to tilt angle. The system performance enhancement in Salt Lake City, Utah ranges from 1.16 for domestic hot water to 1.28 for space heating for equal reflector-collector areas, and the break-even ratio of per area reflector to collector cost is from 16 to 28% for these systems.

(Author)

A80-18560 # A solar energy system with annual aquifer storage. W. J. Schaetzle, C. E. Brett (Alabama, University, University, Ala.), L. R. Fang, and D. M. Grubbs. American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-30. 6 p. 8 refs. Members, \$1.50; nonmembers, \$3.00.

By utilizing a sufficiently large thermal energy storage system, solar energy can be collected the year round and utilized during relatively short periods. Solar energy collected in the summer can be used in the winter. In some cases, over four times as much solar energy can be collected per month in the summer versus collection per month in the winter. The actual capital cost of the solar system for heating with storage can be reduced by over a factor of two where adequate aquifers are available. Two examples are analyzed one in Boston, Massachusetts and one in Birmingham, Alabama. The advantages of annual storage can decrease the capital costs appreciably. For heating in the northern parts of the continental United States, collector areas can be reduced by over 75 percent. This reduction will result in a similar reduction in capital cost, thereby increasing the feasibility of solar systems. (Author)

A80-18561 # Effectiveness NTU charts for latent heat storage units. N. Shamsundar (Houston, University, Houston, Tex.) and R. Srinivasan. American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-16. 12 p. 13 refs. Members, \$1.50; nonmembers, \$3.00. Contract No. EG-77-C-04-3974/EFT-5.

In recent papers, numerically obtained results were presented in which two-dimensional effects were accounted for. In these calculations, axial changes in fluid temperature and solidification rate were neglected, and the coolant temperature was assumed constant. In the present paper, these restrictions are removed. It is shown that complete three-dimensional results can be obtained from the numerical results of the two-dimensional analysis by performing rather simple calculations. The results are presented in the form of charts giving the effectiveness of a heat exchanger in terms of its size, as represented by the number of transfer units, the layout of the tubes in the heat exchanger, and the Biot number. (Author)

A80-18562 # A home-size solar-powered engine for cooling systems of generation of electricity. F. O. Smetana, P. G. Bladen, and T. B. Dameron, III (North Carolina State University, Raleigh, N.C.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-34. 12 p. Members, \$1.50; nonmembers, \$3.00.

The paper outlines the steps taken in designing and constructing a solar-powered engine at the N.C. State University, to produce sufficient electricity from sunlight to meet the needs of the average N.C. resident, estimated at being appróximately 1000 KWH/month. Attention is given to the component selection and assembly, and an examination of the preliminary system operating results is given. Four criteria for the structure are outlined, including that the

structure be able to withstand 100 mph winds and that it requires only bolt-together assembly in relatively light-weight sections. C.F.W.

A80-18563 # Helium penetration in evacuated solar collectors - Theory and effect on their performance. J. R. Thomas, Jr. (Virginia Polytechnic Institute and State University, Blacksburg, Va.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-17. 4 p. 9 refs. Members, \$1.50; nonmembers, \$3.00. Research supported by the U.S. Department of Energy.

An important method of improving the thermal performance of solar collectors is to evacuate the region between collector surface and cover, thereby minimizing convection and conduction heat losses. Convection can be eliminated with modest vacuum levels, but elimination of conduction losses requires vacuum levels of 0.0001 Torr or higher. Vacuum durability becomes an important question for collectors operating under such hard vacuum conditions. Of particular interest are the effects of helium which is present in the atmosphere in the amount of 5 ppm and is known to penetrate most glasses. This paper gives results for helium permeation rates into evacuated collectors, and for the increase in heat loss that results.

(Author)

A80-18564 \* # Comparative study of solar optics for paraboloidal concentrators. L. Wen, P. Poon, W. Carley (California Institute of Technology, Jet Propulsion Laboratory, Energy Technology Engineering Section, Pasadena, Calif.), and L. Huang (U.S. Navy, Civil Engineering Laboratory, Port Hueneme, Calif.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec: 2-7, 1979, Paper 79-WA/Sol-8. 13 p. 71 refs. Members, \$1.50; nonmembers, \$3.00. Research sponsored by the U.S. Department of Energy.

Different analytical methods for computing the flux distribution on the focal plane of a paraboloidal solar concentrator are reviewed. An analytical solution in algebraic form is also derived for an idealized model. The effects resulting from using different assumptions in the definition of optical parameters used in these methodologies are compared and discussed in detail. These parameters include solar irradiance distribution (limb darkening and circumsolar), reflector surface specular spreading, surface slope error, and concentrator pointing inaccuracy. The type of computational method selected for use depends on the maturity of the design and the data available at the time the analysis is made. (Author)

A80-18565 # RAPAD - Real-time Accurate Performance Analysis of Data. L. Lewin; C. A. Baer, D. V. Pryor, C. B. Winn (Colorado State University, Fort Collins, Colo.), and B. W. Parkinson (Rockwell International Corp., Los Angeles, Calif.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-1. 7 p. Members, \$1.50; nonmembers, \$3.00.

An innovative method for the real-time estimation of generic performance characteristics based on recursive least squares filtering is developed. After presenting the theoretical basis for the algorithm, its use is illustrated by applying it by computer simulation to a wind energy conversion system (WECS) whose true performance characteristics are assumed known. It is shown that good agreement between estimated and true performance is obtainable with as little as 1000 data samplings using a realistic level of instrumentation noise. This corresponds to approximately six days of WECS operation. The method is suitable for microprocessor implementation. This would result in the unique advantage of having a best estimate of system performance in real-time, thus alleviating laborintensive and time-consuming data processing often necessary with conventional data acquisition procedures. Ongoing development, including implementation of the technique in conjunction with operational vertical and horizontal axis WEC systems, and optimization of the filter are discussed.

A80-18566 # Addition of solar air heaters to a preengineered metal building. R. E. Forbes and R. W. McClendon (Mississippi State University, Mississippi State, Miss.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-33. 6 p. Members, \$1.50; nonmembers, \$3.00. Research supported by the U.S. Department of Energy.

A80-18567 # Superheated steam generation in a Fresnel lens concentrating collector. R. E. Glass and P. R. Smith (New Mexico State University, Las Cruces, N. Mex.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-21. 8 p. 16 refs. Members, \$1.50; nonmembers, \$3.00.

Concurrent analytical and experimental studies were carried out on linear Fresnel lens solar collectors to determine their potential for producing superheated steam. Nine tracking Northrup collectors were connected in parallel as a single pass boiler. Flat plate collectors were used to preheat the water entering the Fresnel collectors, and superheated steam was produced for all cases. The results of the experimental study were used to verify the computer model developed to study Fresnel lens collectors. The computer model predicted the temperature profiles through the collector in all cases, including the occurrence of the critical heat flux point, and a parametric computer study was made of boiling in linear Fresnel lens collectors. (Author)

A80-18568 # Operational and parameter studies of a solar-powered absorption cycle system with internal latent energy storages. A. W. Harris (General Electric Co., Schenectady, N.Y.) and C. N. Shen (Rensselaer Polytechnic Institute, Troy, N.Y.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-27. 9 p. 8 refs. Members, \$1.50; nonmembers, \$3.00.

Results of operational and parameter studies of a solar-powered heat pump system are presented. The system is based on an absorption cycle having a solar collector directly coupled to the generator with three latent energy storages internal to the cycle. The operational studies are concerned with the development of system design features and operating algorithms that cope with system constraints such as: emptying storage tanks, mixture strength limits, and system operating limits. (Author)

A80-18569 # The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion. D. B. Osborn (Ford Aerospace and Communications Corp., Newport Beach, Calif.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-10. 6 p. 5 refs. Members, \$1.50; nonmembers, \$3.00.

This paper presents the results of the thermal design and analysis of an integrated sodium boiler receiver used for solar energy conversion. The receiver is a major element of a point focus distributed receiver (PFDR) solar thermal-electric system employing Stirling engines for power conversion. The results of the design/analysis study show that a high temperature cavity receiver, employing pool-boiling sodium, is an excellent choice for use in dish-Stirling PFDR systems. The concept is technically feasible at the present time, employing state-of-the-art materials and technology, and will be a cost-effective subsystem when put into production.

(Author

A80-18570 # Design, evaluation, and testing of a moderately concentrating, non-tracking solar energy collector. A. Olvera and R. B. Bannerot (Houston, University, Houston, Tex.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-3. 10 p. 33 refs. Members, \$1.50; nonmembers, \$3.00.

The thermal performance of a moderately concentrating, non-tracking solar energy collector is predicted based on a series of experimental evaluations of its components. Four reflector designs were constructed and tested. Six simple tubular receiver designs and a collector utilizing one of the reflector designs and one of the receiver designs were constructed and tested. The predicted performance closely approximated the actual thermal performance of the

collector. The component evaluations are discussed in detail, so that the analysis can be extended to other designs. (Author)

A80-18571 # Horizontal-axis wind generator performance with varying tip speed ratio and rotor orientation. W. F. O'Brien and J. M. Hinerman (Virginia Polytechnic Institute and State University, Blacksburg, Va.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-2. 7 p. Members, \$1.50; nonmembers, \$3.00. Research supported by the U.S. Department of Agriculture.

An experimental investigation of the performance of a horizontal-axis wind generator was conducted with varying rotor tip speed ratio and orientation relative to wind directions. The machine tested had a rotor diameter of 6.6 m, and a three-phase alternator with diode-rectified output. Rotor speed was controlled by changing the voltage level of the battery load. Operation at varying tip speed ratio (blade tip speed/wind speed) was thus produced. Rotor orientation relative to wind direction (yaw) was controlled by adjusting the position of a steering tail mounted on the wind generator. Values of performance coefficient C(p) are calculated for the various data points, using an elliptical model for projected rotor area. The results are considered to be useful for guidance in the design of performance-optimizing control systems and power-limiting devices for horizontal-axis wind generators. (Author)

A80-18572 # An average slope factor for solar insolation. R. L. Field (Texas A & M University, College Station, Tex.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-41. 6 p. 6 refs. Members, \$1.50; nonmembers, \$3.00.

Design methods for solar collector sizing (such as f-chart) usually require a multiplying factor (the slope factor) to correct insolation data taken on the horizontal for the tilt angle of the solar collector. Available slope factor data were averaged and were replotted to result in a chart whose parameters are latitude and month of year. Correction charts for off-average locations are presented. The error in the given standard slope factor chart is estimated to be accurate + or - 5 percent for many cities. (Author)

A80-18573 # Optimization and comparison strategies for solar energy systems. R. C. Estes and W. Kahan (Singer Corporate Research and Development Laboratory, Fairfield, N.J.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-26. 13 p. 8 refs. Members, \$1.50; nonmembers, \$3.00. Contract No. EG-77-C-03-1467.

An analytical model of several simple, generic solar energy systems, with and without heat pumps is described. The model is augmented by marginal analysis to configure the components of each system type for an economic optimum and consequently, for maximum marketability. This model is to be used as a first-cut means of identifying the combinations of ranges of system component parameters and general geographic regions for which each generic configuration is most marketable. Assessment of marketability includes the following considerations: the size of the capital investment, the operating cost savings relative to alternative systems, future cost of energy, and cost of money. The following six systems types are optimized (where appropriate) and compared: (1) an all electric resistance heating system, (2) a stand-alone heat pump system, (3) a stand-alone solar energy system, (4) a series solar assisted heat pump (SAHP) system, (5) a parallel SAHP system, and (6) a dual source SAHP system. (Author)

A80-18574 # The simulation of building heat transfer for passive solar systems. A. F. Emery, C. J. Kippenhan, D. R. Heerwagen, and G. B. Varey (Washington, University, Seattle, Wash.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-38. 7 p. 6 refs. Members, \$1.50; nonmembers, \$3.00. U.S. Department of Social and Health Services Contract No. 8072-FGF-10432.

A numerical simulation program, based upon a finite difference nodal network, was used to simulate two Los Alamos test cells (one single and one multi-room cell) and a typical residence - all of which were exposed to intense insolation and large changes in ambient weather conditions. For the test cells, the predicted surface and globe temperatures are in good agreement with the measured values and indicate the acceptability of thermal modeling. The program was used to predict the behavior of a residential structure. The process of refining these predictions, guided by observations, led to the development of a stepwise simulation methodology. The insights gained as a result of this interdisciplinary involvement have been stimulating and instructive. The importance of recognizing the differences in the thought processes and the work styles of the several professions has been demonstrated. The most effective simulation methodology was that based upon human comfort, which appeared to be a common perception among all the program users.

(Author

A80-18575 # Thermal energy utilization in the Mississippi County Community College Photovoltaic Project. F. K. Deaver, W. D. Turner (Arkansas, University, Fayetteville, Ark.), and W. H. Woodsmall, Jr. (Cromwell, Neyland, Truemper, Levy, and Gatchell, Inc., Little Rock, Ark.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-29. 6 p. Members, \$1.50; nonmembers, \$3.00. Research supported by the U.S. Department of Energy.

The first DOE funded solar photovoltaic demonstration project at the Mississippi County Community College in Blytheville, Arkansas is examined. One of the features of the project, the cooling loop for the silicon cells and the subsequent utilization of the thermal energy to supply heat to the building are described in detail. The overall configuration of the Solar Photovoltaic Conversion System includes four major functional subsystems: the collection subsystem, the power conditioning system, the solar energy control subsystem, and the collector cooling/thermal subsystem.

C.F.W.

A80-18576 # Evaluation of a solar heating system installed in the LSU Field House. D. Maples (Louisiana State University, Baton Rouge, La.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-31. 6 p. Members, \$1.50; nonmembers, \$3.00.

As a demonstration in the use of solar energy, a solar system was installed on the Louisiana State University Field House. The system is capable of handling most of the hot water load and a small part of the space heating load required by the Field House. A mathematical model of the solar heating system was also developed. This model is capable of predicting the performance of the system using the following parameters: incident solar flux, outside ambient temperature; wind velocity and the amount of makeup water for the hot water system. A comparison between the predicted performance and the actual performance of the system was made. Control strategies and system parameters were varied to gauge the effect on the system. Finally, the flat-plate collector efficiency as a function of inlet water temperature was determined. (Author)

A80-18577 # Noniterative solution of heat transfer equation of fluid flow in solar collector. J. P. Chiou (Detroit, University, Detroit, Mich.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-24. 6 p. 23 refs. Members, \$1.50; nonmembers, \$3.00.

If the longitudinal heat conduction in the absorber plate and the tube wall of the solar collector are significant, thermal analysis of the fluid flowing through the collector tube generally requires an initial assumption of the fluid temperature distribution. Iteration scheme is then used in the analysis until the actual fluid temperature distribution is found. In this paper, a more efficient noniterative method for determination of this temperature distribution is presented. Collector efficiencies of a typical flat plate solar collector are calculated by this method for various operating conditions. The results are found to be in excellent agreement with those calculated by conventional techniques. (Author)

A80-18578 # An optimization formulation for solar hot water systems. K. K. Chang and A. Minardi (Central Florida, University, Orlando, Fla.). American Society of Mechanical Engi-

neers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-42. 7 p. 6 refs. Members, \$1.50; nonmembers, \$3.00.

A mathematical correlation between collector area and auxiliary energy used in a solar hot water system was obtained by using TRNSYS program. Based on this correlation, optimum collector area was directly related to both economic factors and system parameters. A criteria for economic feasibility was obtained. A comparison of optimum area calculated by this analysis with optimum area based on f-chart data was in good agreement. (Author)

A80-18579 # SOLSTEP - A computer model for predicting the thermodynamic and economic performance of solar thermal power plants. S. P. Bird (Battelle Pacific Northwest Laboratory, Richland, Wash.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-12. 8 p. 9 refs. Members, \$1.50; nonmembers, \$3.00. Research supported by the U.S. Department of Energy.

A thermodynamic and economic performance analysis code, SOLSTEP, was developed to facilitate the evaluation of solar thermal power plant designs. The code conducts a time step simulation of the plant thermodynamic performance using actual recorded meteorological and insolation data. Each analysis case provides capacity factor and levelized energy cost results for several plant configurations using various combinations of collector field size and storage capacity. The code has been used to analyze a variety of solar thermal generic concepts involving several collector types and energy conversion and storage subsystems. (Author)

A80-18580 # A design method for optimizing collector systems for small solar center receivers. R. B. Bannerot and C. L. Laurence (Houston, University, Houston, Tex.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-14. 9 p. 12 refs. Members, \$1.50; nonmembers, \$3.00. Research sponsored by the U.S. Department of Energy.

The design methodology for the determination of the optimal heliostat field designs is presented in detail for a small solar central receiver. The optimization process is reviewed. Cost and performance models are discussed. To illustrate the design process, a representative small solar central receiver system is optimized. Cost factors were developed from current prices. The individual heliostat design and cost data were taken from the design of the ten megawatt-electric Barstow Pilot Plant design. A north field configuration, steel guyed tower and a tilted, circular aperture, cavity receiver were utilized. It is demonstrated that solar central receiver systems are more cost effective at higher power levels, above those considered here. But this fact has nothing to do with relative cost effectiveness of competing small, stand-alone, power systems. (Author)

A80-18581 # SHADE - A computer model for evaluating the optical performance of two-axis tracking parabolic concentrators. W. J. Apley (Battelle Pacific Northwest Laboratory, Richland, Wash.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-13. 7 p. 7 refs. Members, \$1.50; nonmembers, \$3.00. Research sponsored by the U.S. Department of Energy.

A computer model SHADE (Selection of Heliostat Arrangement for Distributed Engines) has been developed at the Pacific Northwest Laboratory to aid in determining the optical performance of two-axis tracking parabolic concentrators. The shading of individual mirror assemblies in a field of parabolic dishes determines the optimal field arrangement and the most efficient method of plant operation. SHADE provides a simple and inexpensive analytical tool for examining certain design aspects of solar thermal power systems using a network of point-focusing parabolic concentrators. (Author)

A80-18582 # Analysis of convective heat loss from the receiver of solar power plants. L. S. Yao and F. M. Chen (Illinois, University, Urbana, III.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/HT-36. 9 p. 24 refs. Members, \$1.50; nonmembers, \$3.00.

The receiver of solar power plants is modeled as a semiinfinite vertical cylinder. The analysis is carried out to investigate the convective heat loss. Constant surface temperature is selected as the idealized condition for the receiver. Heat loss from the receiver is due to the combined mode of the free convection and the forced convection. The problem is studied under the condition that a steady horizontal breeze passes the receiver. The forced convection is treated as a perturbed effect. The solution shows that the free convection dominates the heat loss along the bottom of the cylinder.

A80-18583 # Preliminary analysis of a total solar heating system. C. B. Winn, P. Burns, E. Trigg (Colorado State University, Fort Collins, Colo.), and J. Leflar (SEEC, Inc., Fort Collins, Colo.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-40. 7 p. Members, \$1.50; nonmembers, \$3.00.

The thermal and economic performances of long-term storage solar systems have been studied by use of a computer simulation developed at Colorado State University. The systems have been analyzed for Madison, Wisconsin and Boulder-Denver, Colorado. The effects of long-term storage size, long-term storage insulation and collector tilt angle have been detailed. Economic analyses indicate savings vs. long-term storage volume for various values of rock box insulation. Also, some interesting heat transfer effects are presented. Results indicate that long-term storage systems perform well where the annual heat load is high and the values of winter insolation are low. Also, relatively small (142 cu m) storage volumes performed most economically.

A80-18584 \* # A solar thermal electric power plant for small communities. R. J. Holl (McDonnel! Douglas Astronautics Co., Huntington Beach, Calif.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-7. 12 p. 9 refs. Members, \$1.50; nonmembers, \$3.00. Research sponsored by the U.S. Department of Energy and NASA.

A solar power plant has been designed with a rating of 1000-kW electric and a 0.4 annual capacity factor. It was configured as a prototype for plants in the 1000 to 10,000-kWe size range for application to small communities or industrial users either gridconnected or isolated from a utility grid. A small central receiver was selected for solar energy collection after being compared with alternative distributed collectors. Further trade studies resulted in the selection of Hitec (heat transfer salt composed of 53 percent KNO3, 40 percent NaNO2, 7 percent NaNO3) as both the receiver coolant and the sensible heat thermal stroage medium and the steam Rankine cycle for power conversion. The plant is configured with road-transportable units to accommodate remote sites and minimize site assembly requirements. Results of the analyses indicate that busbar energy costs are competitive with diesel-electric plants in certain situations, e.g., off-grid, remote regions with high insolation. Sensitivity of energy costs to plant power rating and system capacity factor are given. (Author)

A80-18585 # A comparison of test results for flat-plate water:heating solar collectors using the BSE and ASHRAE procedures. J. P. Jenkins and J. E. Hill (National Bureau of Standards, Washington, D.C.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-4. 13 p. 10 refs. Members, \$1.50; nonmembers, \$3.00. Research sponsored by the U.S. Department of Energy.

Five solar collectors were tested according to the BSE and ASHRAE test procedures and the results compared. All five collectors tested were modular, flat-plate, water heating, and included single- and double-glazed designs with and without selectively coated absorbers. In both procedures, collector efficiency curves are determined. The ASHRAE procedure consists exclusively of outdoor testing whereas the BSE procedure requires a combination of outdoor and indoor testing (no irradiation) to determine the collector's optical and thermal loss characteristics, respectively. During the indoor testing in this study, the environmental test

conditions were controlled and regulated by use of specially built environmental simulators to investigate the effect of wind speed and 'sky' temperature on the thermal loss characteristics of the collectors.

(Author)

A80-18586 \* # Small solar thermal electric power plants with early commercial potential. H. E. Jones, D. J. Bisantz, R. N. Clayton, H. H. Heiges, and A. C. Ku (General Electric Co., Schenectady, N.Y.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-9. 8 p. 5 refs. Members, \$1.50; nonmembers, \$3.00. Contract No. JPL-955116.

Cost-effective small solar thermal electric power plants (1- to 10-MW nominal size) offer an attractive way of helping the world meet its future energy needs. The paper describes the characteristics of a conceptual near-term plant (about 1 MW) and a potential 1990 commercial version. The basic system concept is one in which steam is generated using two-axis tracking, parabolic dish, and point-focusing collectors. The steam is transported through low-loss piping to a central steam turbine generator unit where it is converted to electricity. The plants have no energy storage and their output power level varies with the solar insolation level. This system concept, which is firmly based on state-of-the-art technology, is projected to offer one of the fastest paths for U.S. commercialization of solar thermal electric power plants through moderate technology advances and mass production. (Author)

A80-18587 # Performance of heat pumps at elevated evaporating temperatures - With application to solar input. E. A. Kush (Brookhaven National Laboratory, Upton, N.Y.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-19. 9 p. 10 refs. Members, \$1.50; nonmembers, \$3.00. Research sponsored by the U.S. Department of Energy.

The paper presents theoretical predictions, results of systematic experiments run on a special heat pump simulator, and interpretation/analysis of how high Coefficients of Performance (COP) heat pumps can be used in installed Solar Assisted Heat Pump (SAHP) systems. The residential application of heat pumps is discussed and an emphasis is placed on liquid source heat pumps - liquid source affording more efficient heat exchange, water tank thermal storage, and compatibility with earth sources. It is concluded that heating COP's which increase substantially with source (and evaporating) temperature are attainable with capacity modulating compressors, large heat exchangers and proper expansion device.

C.F.W.

A80-18588 \* # The effects of regional insolation differences upon advanced solar thermal electric power plant performance and energy costs. A. F. Latta, J. M. Bowyer, and T. Fujita (California Institute of Technology, Jet Propulsion Laboratory, Pasadena, Calif.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-15. 10 p. 11 refs. Members, \$1.50; nonmembers, \$3.00. Contract No. DE-AIO1-79ET-20307.

This paper presents the performance and cost of four 10-MWe advanced solar thermal electric power plants sited in various regions of the continental United States. Each region has different insolation characteristics which result in varying collector field areas, plant performance, capital costs, and energy costs. The paraboloidal dish, central receiver, cylindrical parabolic trough, and compound parabolic concentrator (CPC) comprise the advanced concepts studied. This paper contains a discussion of the regional insolation data base, a description of the solar systems' performances and costs, and a presentation of a range for the forecast cost of conventional electricity by region and nationally over the next several decades.

(Author)

A80-18589 # Comparison of predicted and measured solar energy system performance. J. C. Mears, Jr., J. M. Nash, and J. T. Smok (IBM, Federal Systems Div., Gaithersburg, Md.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-39. 7 p. 12 refs. Members, \$1.50; nonmembers, \$3.00. Contract No. EG-77-C-01-4049.

The paper describes the comparison methods of solar energy between the measured performance data and the data from an f-chart analysis. The results of the comparison demonstrate that it is possible to utilize FCHART to generate monthly performance references for selected systems if suitable inputs to the program are defined. This approach enables the realization of two important goals: the establishment of a monthly performance reference for the National Solar Data Network, and further verification of the validity of f-chart as a design aid. Four systems were selected from the NSDN to illustrate expected performance prediction analysis. The systems include: (1) an air space heating and domestic hot water system, and (3) a liquid space heating and domestic hot water system.

C.F.W.

A80-18590 # Comparisons of measured and simulated performance for CSU Solar House I. J. W. Mitchell, W. A. Beckman (Wisconsin, University, Madison, Wis.), and M. J. Pawelski (Trane Co., LaCrosse, Wis.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-35. 5 p. 7 refs. Members, \$1.50; nonmembers, \$3.00. Contract No. E(11-1)-2588.

The solar heating system for CSU Solar House I is simulated using TRNSYS, and simulation results are compared to the measured performance. The heating system is composed of a liquid collection and storage system, a domestic hot water system, and an air delivery system. The components were modeled using standard TRNSYS components. Weather data recorded at the site were employed as the driving function. Measured energy quantities were compared to those from the simulation for three periods of six to eleven days each and on both a daily basis and over the entire period. The simulated energy quantities agree with the data within the accuracy of the measurements. Simulated values of storage tank temperatures generally agree within 2C of the measured values. These results help establish the validity of simulation methods for system analysis.

(Author)

A80-18591 # Residential solar heat pump systems - Thermal and economic performance. J. H. Morehouse and P. J. Hughes (Science Applications, Inc., McLean, Va.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-25. 9 p. 21 refs. Members, \$1.50; nonmembers, \$3.00. Contract No. DE-8C04-78CS-34261.

This study performed an analysis of series and parallel configured solar heat pump systems for residences. The year-round thermal performance for all the heating, cooling and hot water system configurations were determined by simulation and compared against conventional heating and cooling systems in three geographic locations. The series and parallel combined solar heat pump systems investigated are at best marginally competitive, on a 20-year life-cycle cost basis, with conventional oil and electric furnace systems. The combined solar heat pump systems are not economically competitive with conventional gas furnace or stand-alone heat pump systems for residential space heating, cooling and water heating. (Author)

A80-18592 # Design of the International Energy Agency 500 kWe distributed-collector solar thermal-electric powerplant. T. W. Neumann and C. D. Hartman (Acurex Corp., Alternate Energy Div., Mountain View, Calif.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Sol-6. 7 p. Members, \$1.50; nonmembers, \$3.00.

This paper reviews the results of engineering studies for an International Energy Agency (IEA) project for the design and construction of a 500-kWe (net) solar thermal-electric power generation system of the distributed collector system (DCS) type. The project is part of the IEA Small Solar Power System (SSPS) Project, and is being constructed as a demonstration plant in the province of Almeria in southern Spain. The DCS system design was completed by a 10 nation team. Construction is presently underway. The design consists of a mixed field of parabolic trough-type solar collectors of both German and U.S. design which are used to heat a thermal heat transfer oil. (Author)

A80-18593 # The influence of thermophysical properties on the design and sizing of geothermal power plant components. H. E. Khalifa (United Technologies Research Center, East Hartford, Conn.) and J. Kestin (Brown University, Providence, R.I.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/HT-18. 7 p. 19 refs. Members, \$1.50; nonmembers, \$3.00. Contract No. EY-76-S-02-4051-A002.

The paper presents a study of the influence of uncertainties in the thermophysical properties of the working fluids on the preliminary design and sizing of the major components of a power plant. The effect of these uncertainties is discussed first qualitatively to characterize the nature of the problems resulting from them, then quantitatively to determine the relative magnitude of the differences in component design and size that would result if a power plant is designed on the basis of different sets of working fluid properties. Special emphasis is placed on isobutane which appears to be attractive for geothermal energy extraction. (Author)

A80-18595 # A solar assisted and wind powered heat pump for residential dwellings. E. Spero (Basic Automation, Ltd., Jerusalem, Israel) and A. Dybbs (Case Western Reserve University, Cleveland, Ohio). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/HT-33. 10 p. 14 refs. Members, \$1,50; nonmembers. \$3.00.

This paper presents a practical and cost-effective design of a residential energy system. The system combines the use of solar collectors and a wind turbine with a water to air heat pump. The wind turbine is directly coupled to the compressor of the heat pump and a thermal energy generator, thus eliminating intermediate stages and improving energy conversion efficiency. Proper matching between collection and conversion elements eliminates the need for complex speed controls. The system was simulated on a digital computer using hourly wind, temperature, and total daily isolation data for the Cleveland, Ohio, area. The results indicate that the collector and storage elements are smaller than expected because of the high degree of matching between the solar and wind energy availability and demand, along with an increased probability that one of these energy sources will be available. (Author)

A80-18596 # Solar thermal central receiver systems. D. L. Siebers, M. Abrams, and R. J. Gallagher (Sandia Laboratories, Livermore, Calif.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/HT-38. 6 p. 17 refs. Members, \$1.50; nonmembers, \$3.00.

Research needs in the thermal sciences relevant to the development of the solar central receiver concept are identified. The primary need is the creation of theoretical and empirical tools to predict energy loss from cavity and external receivers due to combined natural and forced convection heat transfer. The possibility of using boundary layer suction to reduce the convective energy loss is explored. The technique is found to be advantageous if the energy in the withdrawn air is recovered. In an unrelated problem area, a test to quantify boiling-induced thermal fatigue in a solar receiver is described. (Author)

A80-18600 # Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation. N. M. Rafat, M. M. Elkotb, and M. F. El-Refaie (Cairo University, Cairo, Egypt). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/HT-67. 8 p. 9 refs. Members, \$1.50; nonmembers, \$3.00.

This is an analytical treatment of the multi-pass solar fluid-heater when the received radiant energy is nonuniformly distributed in the cross direction, normal to the flow. Adjacent passes are allowed to exchange energy. Closed-form formulas are derived for the fluid and wall temperature distributions along different passes. Mathematical expressions are presented for two performance indices, the efficiency and the effectiveness. (Author)

A80-18620 # A vortex model of the Darrieus turbine - An analytical and experimental study. J. H. Strickland, B. T. Webster, and T. Nguyen (Texas Tech University, Lubbock, Tex.). American Society of Mechanical Engineers, Winter Annual Meeting, New York,

N.Y., Dec. 2-7, 1979, Paper 79-WA/FE-6. 6 p. 16 refs. Members, \$1.50; nonmembers, \$3.00. Research supported by the U.S. Department of Energy.

An aerodynamic prediction model has been formulated for twoand three-dimensional Darrieus turbines using a vortex lattice method of analysis. Experiments were conducted on a series of two-dimensional rotor configurations in a water tow tank. The agreement between analysis and experiment was in general found to be good. This model should allow one to make accurate predictions of instantaneous aerodynamic blade forces and to characterize the near wake flow behind the rotor. (Author)

A80-18623 # Fiscal year 1978 experiences at TVA's Widows Creek unit 8 limestone scrubber. W. L. Wells, J. F. Shiau, and J. H. Buckner (Tennessee Valley Authority, Chattanooga, Tenn.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/APC-10. 15 p. 6 refs. Members, \$1.50; nonmembers, \$3.00.

The report updates TVA's experiences with its first full-scale limestone scrubber. A status report is given on operational and maintenance problems, including discussion of solutions found for some of these and a listing of others in the yet-to-be-resolved category. In addition, some of the results obtained from 12 monitoring points are outlined. Emphasis is on the changes observed as a function of time. Also discussed is the chemistry in the absorber and venturi circulation loops. The impact of the scrubber reheater on turbine cycle efficiency and scrubber system auxiliary power consumption are presented. Finally, an attempt is made to assess the cost of the flue gas desulfurization facility, considering all the factors proper to such an evaluation.

A80-18627 # Feasible thermophysical conditions for gas receiver tubes in solar power stations. M. Becker (Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt, Cologne, West Germany). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/HT-37. 10 p. 7 refs. Members, \$1.50; nonmembers, \$3.00.

Heat transfer to air in turbulent pipe flow is analyzed and numerically computed. This is applied to estimate the energy transfer process in a solar thermal receiver of a central tower facility. The general condition of uniformly heated pipe flow will be discussed with dependence on, e.g., heat flux (10 to 1000 kW/m·sq), inlet pressure (4 to 80 bar), and tube radius (10 to 40 mm). For technical and economical optimization, the combination of high heat flux and high pressure is recommended. Thus, for a solar power station with gas as heat transfer medium, the closed thermal cycle is favored.

(Author)

A80-18631 # An evaluation of thermal energy storage for residential air conditioning applications. J. W. Jones and T. J. Small, III (Texas, University, Austin, Tex.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/HT-31. 9 p. 6 refs. Members, \$1.50; non-members, \$3.00.

The application of daily cycle thermal energy storage in residential air conditioning has significant potential for energy use management. The purpose of this study has been to evaluate the technical feasibility of two thermal storage systems and to determine the possible energy and economic benefits of their use. A computerized load analysis and system simulation procedure was used to determine the power requirements of both storage and conventional air conditioning system for a 1600-sq ft residence. The results obtained indicate that thermal storage could have a positive impact on utility load profiles. It could also result in operating cost savings to homeowners under proposed time-of-day rate schedules, but the high initial cost makes storage systems a marginal investment at present. The results indicate that the impact on residential energy conservation ranges from negligible to somewhat negative. (Author)

A80-18637 # A small hybrid solar closed-cycle gas turbine cogeneration plant concept based on today's technology. C. F. McDonald (General Atomic Co., San Diego, Calif.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/GT-3. 14 p. 41 refs. Members, \$1.50; nonmembers, \$3.00.

There are currently several possibilities for conversion of solar energy into electrical power (i.e., direct conversion, steam plant, open-cycle gas turbine, and closed-cycle gas turbine), with differing degrees of complexity, technology readiness, cost, and development requirements. This paper emphasizes a low technology approach of combining a closed-cycle gas turbine power conversion system, operating at a very modest temperature, and a point-focusing distributed receiver system consisting of parabolic dish concentrators with focal-mounted heat source exchangers, and a centralized prime-mover. The utilization of existing and proven technology is also emphasized, and aspects of the power conversion and heat source systems for a small plant concept are discussed. (Author)

A80-18644 # Screening evaluation of electric power cycles integrated with coal gasification plants. S. P. Gallagher (General Electric Co., Schenectady, N.Y.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Ener-4. 8 p. Members, \$1.50; nonmembers, \$3.00.

The paper presents the results of an investigation of potentially lower cost alternatives to present concepts for integrated gasification combined cycle power plants. The study aimed to determine if a gasification system integrated with a reduced cost power plant could provide an attractive thermal efficiency; the cost reduction was achieved by removing the steam-bottoming system from a combined cycle so that only the gas turbine remained. The cycle efficiencies were determined for this non-bottomed cycle and several steam-bottom systems, using current and advanced gas turbines. Based on these performances, an economic overview was made comparing the capital cost and efficiency differences of competing systems.

A80-18645 # Novel power generation cycles using coal gas. R. V. Garland (Westinghouse Electric Corp., Combustion Turbine Systems Div., Concordville, Pa.) and M. J. Gluckman (Electric Power Research Institute, Palo Alto, Calif.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Ener-5. 10 p. Members, 1.50; nonmembers, \$3.00.

This paper presents the results of a screening study on power cycles integrated with a coal gasification plant. Three basic plant configurations are studied: (1) the Condensing Combined Cycle, the most common combined cycle, which includes combustion turbines, gas expanders and condensing steam turbines. This configuration should be considered as the base case: (2) the Single Cycle, which is comprised of combustion turbines and gas expanders, but no steam turbines; (3) the Non-Condensing Combined Cycle, which utilizes combustion turbines, gas expanders and a non-condensing steam turbine. The gasifier used throughout is the Texaco entrained, coal slurry-fed, air blown gasification system along with a scrubber, sulfur removal system and a tail gas treater.

(Author)

A80-18646 # Novel gas turbine cycles with coal gasification. S. Hamilton (United Technologies Corp., Power Systems Div., South Windsor, Conn.) and S. J. Lehman (United Technologies Research Center, East Hartford, Conn.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Ener-6. 7 p. 6 refs. Members, \$1.50; nonmembers, \$3.00. Research sponsored by the Electric Power Research Institute.

This paper summarizes the results of a study to devise efficient gas turbine cycles without steam bottoming for use with coal gasification. Substitution of other forms of heat recovery in place of steam bottoming offers a potential cost saving. A novel form of the intercooled-reheat-regenerative cycle was devised with thermal efficiency nearly as high as that of combined cycles. As an additional finding, a reference gasified coal combined cycle power plant with

current technology gas turbines was shown to be potentially more efficient than current coal-fired steam power plants with flue gas desulfurization.

(Author)

A80-18721 Transmission of tidal energy over a plateau. R. A. Heath (New Zealand Oceanographic Institute, Wellington, New Zealand). Deutsche Hydrographische Zeitschrift, vol. 32, no. 6, 1979, p. 289-296. 6 refs.

Variations in the response to an incident long wave on a step function plateau are considered as a function of the angle of incidence. Only for large angles of incidence is there a substantial change in the modulus of the amplitude ratio of the transmitted to incidence wave. The amplitude of the wave on top of the plateau varies strongly with the angle of incidence. Zero transmission can occur only if there is a net increase in depth across the plateau in the direction of the incident wave, the critical angle of incidence being independent of frequency. If the modulus of the angle of incidence is greater than the critical angle, wave energy is trapped along the trailing escarpment of the plateau. (Author)

A80-18728 \* Are large concentration of atomic H storable in tritium-impregnated solid in H2 below 0.10 K. G. Rosen (Drexel University, Philadelphia, Pa.) and R. W. H. Webeler (Iowa, University, Iowa City, Iowa). *Nuovo Cimento, Lettere, Serie 2*, vol. 26, Dec. 22, 1979, p. 579-585. 7 refs. Grant No. NsG-7491.

The storage and release of atomic hydrogen produced by the beta decay of tritium contained in a crystalline solid H2 matrix at concentrations greater than 2% and temperatures below 0.80 K are investigated. The temperature of a sample chamber containing tritium-impregnated H2 and placed in the mixing chamber of a dilution refrigerator was measured as the chamber was heated and cooled in order to determine the rates of energy storage and release. It is found that for samples containing 1.2 wt.% tritium, after storage at 0.054 K for 40 h, an increase in sample temperature to a trigger point of 0.17 K leads to an energy release due to the destabilization of atomic H in H2 as predicted by the phenomenological rate process theory. For a tritium weight fraction of 2.5%, energy releases were triggered at 0.54 and 0.82 K after storage at 0.080 K, indicating the trapping of H atoms at the sites of T2 and HT molecules in the sample. The application of a 15 kG magnetic field is shown to increase the storage capacity of T2 traps while reducing that of HT traps, and to lower the trigger temperatures of both. Results suggest that the direct conversion of nuclear energy to chemical energy may become technically feasible in the future.

A80-18733 # Energetics aspects of environmental protection (Energeticheskie aspekty zashchity okruzhaiushchei sredy). S. S. Kutateladze, V. N. Moskvicheva, B. I. Psakhis, V. K. Shitov, and L. A. Ogurechnikov. Akademiia Nauk SSSR, Izvestiia, Energetika i Transport, Nov.-Dec. 1979, p. 84-97. 10 refs. In Russian.

Consideration is given to means of effectively utilizing low-temperature heat and toxic wastes produced by chemical and petrochemical processing installations. Means developed for the reduction of thermal wastes in the major energy processing industries and for the processing and recovery of solid, liquid and gaseous chemical-process industrial effluents are presented. Of the more than 20 types of apparatus developed by the Thermophysical Institute of the Siberian Academy of Sciences in the last five to seven years, it is noted that the most important processes make use of boiling and condensation, together with gas/liquid interactions, film flow, bubbling and stream flow, while heat and mass transfer processes have not yet been investigated sufficiently. The technical and economic effectiveness of the various processes are also evaluated.

A.L.W

A80-18734 # Automobile transportation and the environment (Avtomobil'nyi transport i okruzhaiushchaia sreda). D. P. Velikanov. Akademiia Nauk SSSR, Izvestiia, Energetika i Transport, Nov.-Dec. 1979, p. 98-109. 8 refs. In Russian.

The problem of the pollution of the atmosphere by substances released by automobiles burning petroleum-derived fuels is reviewed. The production of carbon monoxide, hydrocarbons, nitrogen oxides and sulfur by gasoline, diesel and gas engines is quantified, and the

introduction of pollution-free electric automobiles is considered in terms of the limitations imposed by the current state of battery technology. Measures taken to control automobile pollution in the United States are presented, including the use of catalytic converters and improvements to the fuel system and combustion chamber and predictions of air pollution levels in major cities in the USSR by 1990 are presented. The introduction of maximum allowable pollutant levels in the Soviet Union and the measurement of engine emissions are reported, and planned conversion to electric vehicles, replacement of lead as an antiknock ingredient, and increased fuel efficiency by means of equal fuel and air distribution to each cylinder and combustion gas recirculation are presented. The use of nonpolluting hydrogen fuel is also evaluated.

A80-18735 Fluid bed combustion in processing, environmental protection and energy supply. L. Reh (Lurgi Chemie und Hüttentechnik GmbH, Frankfurt am Main, West Germany). (American Flame Research Committee, International Fluidized Bed Combustion Symposium, Boston, Mass., Apr. 30-May 1, 1979.) Erdöl und Kohle Erdgas Petrochemie vereinigt mit Brennstoff-Chemie, vol. 32, Dec. 1979, p. 560-566. 65 refs.

Following a brief review of the history of development of fluid bed combustion the advantages of the fluid bed principle for an environmentally favorable combustion at low temperatures and the conditions of different fluidizing states applicable to combustion are discussed. Hereby the importance of the radial mixing behavior of fluidizing gas and fluidized solids for achieving the desired uniformity of fluid bed temperatures is mentioned. Applications of fluid bed combustion of different fuels in processing, in environmental protection and in energy supply are explained. In process techniques a description is given of the regeneration of used HCL-pickle liquors and the calcination of aluminum trihydrate in a circulating fluid bed. In environmental processing, the incineration of sludge in compact fluid bed and combined multiple hearth/fluidized bed furnaces is described, as, in energy supply techniques, is the roasting of sulphidic ores and the new development of coal combustion in a circulating fluid bed for exclusively supplying steam or heat. (Author)

A80-18746 International Conference on the Photochemical Conversion and Storage of Solar Energy, 2nd, Cambridge University, Cambridge, England, August 10-12, 1978, Lectures. Journal of Photochemistry, vol. 10, Jan. 1979. 135 p. (For individual items see A80-18747 to A80-18752)

Articles are presented on energy storage in organic photoisomers, light induced electron transfer reactions, photogalvanic cells, as well as on photoelectrochemistry and heterogeneous photocatalysis at semiconductors. Other subjects include the physics and chemistry of solar cells and synthetic molecular organizates.

C.F.W.

A80-18747 Energy storage in organic photoisomers. G. Jones, II, S.-H. Chiang, and P. T. Xuan (Boston University, Boston, Mass.). (International Conference on the Photochemical Conversion and Storage of Solar Energy, 2nd, Cambridge, England, Aug. 10-12, 1978.) Journal of Photochemistry, vol. 10, Jan. 1979, p. 1-18. 69 refs. Research supported by the U.S. Department of Energy.

Criteria for the successful photochemical storage of solar energy as latent heat in organic materials are outlined. Photoisomerization reactions which have some potential for storage of photon energy in kinetically stable products are surveyed. Emphasis is placed on well-known internal cyclo-additions which display thermal reversibility, large storage capacities and high chemical and quantum efficiencies. Chemicals available on an industrial scale, which are known to undergo valence isomerization, are identified, and attempts to drive these reactions via exciplexes (complexes involving strong electron donor or electron acceptor sensitizers) are described. The sensitized isomerization of dimethylnorbornadiene-2,3-dicarboxylate and a model compound, hexamethyldewarbenzene, are identified as bona fide exciplex isomerizations. Triplet sensitizers have been employed in the sensitization of 7 to visible light (to 500 nm) and the potential importance of endothermic energy transfer in triplet sensitization (the upconversion of very low energy triplets) is discussed. The review includes developments by several research groups in the spectral sensitization of isomerizable substrates, the use of heterogeneous photosensitizers, and photocalorimetric techniques.

(Author)

A80-18749 Photogalvanic cells. W. J. Albery and A. W. Foulds (Imperial College of Science and Technology, London, England). (International Conference on the Photochemical Conversion and Storage of Solar Energy, 2nd, Cambridge, England, Aug. 10-12, 1978.) Journal of Photochemistry, vol. 10, Jan. 1979, p. 41-57, 27 refs.

The theory of the operation of the ideal photogalvanic cell for solar energy conversion is described and the crucial kinetic characteristics that the system must possess are deduced for the homogeneous kinetics, the mass transfer and the electrode kinetics. Existing iron-ruthenium and iron-thionine systems are discussed with respect to the ideal characteristics. In the case of the iron-ruthenium system the kinetics of the thermal back reaction are too rapid and the cell does not have differential electrode kinetics. The iron-thionine system satisfies many of the criteria. A thionine-coated electrode possesses the necessary differential electrode kinetics. Sulphonated thionine is to be preferred to ordinary thionine in that it is more soluble. The performance of the iron-thionine cell with respect to the ideal cell is analyzed and discussed. (Author)

A80-18750 Photoelectrochemistry and heterogeneous photocatalysis at semiconductors. A. J. Bard (Texas, University, Austin, Tex.). (International Conference on the Photochemical Conversion and Storage of Solar Energy, 2nd, Cambridge, England, Aug. 10-12, 1978.) Journal of Photochemistry, vol. 10, Jan. 1979, p. 59-75. 73 refs. Research supported by the Robert A. Welch Foundation and NSF.

The principles and applications of semiconductor electrodes in photoelectrochemical (PEC) cells (liquid junction photovoltaic, photoelectrosynthetic, photocatalytic) are described. Factors important to the design of practical systems and the extension of the principles of PEC cells to particulate systems for carrying out heterogeneous photocatalysis and photosynthesis are discussed. A 'dual n-type semiconductor' model of biological photosynthesis is proposed and possible means of utilization of such a system is described. (Author)

A80-18751 The physics and chemistry of solar cells. K. W. Böer (Delaware, University; SES, Inc., Newark, Del.). (International Conference on the Photochemical Conversion and Storage of Solar Energy, 2nd, Cambridge, England, Aug. 10-12, 1978.) Journal of Photochemistry, vol. 10, Jan. 1979, p. 77-110. 52 refs. Research supported by SES, Inc.

The physics of the photovoltaic effect is analyzed using the example of a frontwall solar cell. The effect results from the interplay of the emitter, in which minority carriers are generated via absorbed light and diffuse to the junction, and the junction, in which the essential voltage drop occurs. The interplay is established by the minority carrier density at the emitter-junction interface, acting as prominent boundary condition, and connecting current through the device with applied voltage. The chemistry of the interlayer between emitter and junction has essential influence on this boundary condition by determining interface recombination and space charge. Both of these determine band connection and performance of the device. A brief review of material properties in the light of the basic cell operation is given. (Author)

A80-18752 Synthetic molecular organizates. H. Kuhn (Max-Planck-Institut für biophysikalische Chemie, Göttingen, West Germany). (International Conference on the Photochemical Conversion and Storage of Solar Energy, 2nd, Cambridge, England, Aug. 10-12, 1978.) Journal of Photochemistry, vol. 10, Jan. 1979, p. 111-132. 27 refs.

Organized systems of molecules (organizates) can be obtained by assembling monolayers of planned composition and architecture. Appropriately constructed monolayer assemblies can be used to study light-induced vectorial charge separation. Such systems are of interest in designing devices for solar energy conversion. Possibilities of such devices are discussed and experiments are presented to demonstrate light-induced charge separation. Charge separation is limited by the quantum mechanical tunnelling effect which cannot be avoided at molecular dimensions. Experiments to study that effect are described. Monolayer assemblies to discriminate between different mechanisms of spectral sensitization of photoeffects by dyes are discussed and cases are considered where an increased spectral sensitization is achieved by cooperation of different dye molecules.

(Author)

A80-18797 Space light - Space industrial enhancement of the solar option. K. A. Ehricke (Space Global, La Jolla, Calif.). *Acta Astronautica*, vol. 6, Dec. 1979, p. 1515-1633, 34 refs.

The paper considers space light systems which provide an opportunity for the application of space technology to the enhancement of the solar energy uses in industrial countries. The space light functions range from night illumination of rural and urban areas (Lunetta systems) to photosynthetic production enhancement for the growth of food and biomass for conversion to chemical fuels; to electric power generation by irradiating photovoltaic or thermal ground receivers at night or by adding to the natural solar energy input in daytime (Soletta systems). The Lunetta and Solletta concepts are reviewed, and an assessment of terrestrial alternatives is made; the Lunetta, Powersolletta, and a large Biosolletta space light systems are selected for large-scale seafood production in Antarctic and Arctic waters. Models are developed for rural and urban lighting, power generation with photovoltaic and thermal ground stations, and for the large-scale production of seafood. A.T.

A80-18800 Cost effectiveness requirements for space power stations. G. K. C. Pardoe (General Technology Systems, Ltd., Brentford, Middx., England). *Acta Astronautica*, vol. 6, Dec. 1979, p. 1745-1752.

The concept of converting solar energy in orbital space stations and transmitting electrical power to Earth at radio frequency, is receiving increasing attention both in paper studies and experimental and development work. The projects conceived are large in scale and implications and will demand major resources in their development and deployment. This paper, therefore, examines the requirements which together will determine the appropriate levels of cost effectiveness of space power stations and should assist in establishing critical or sensitive areas which will influence the operational validity of the concepts. The r.f. transmission of electric power to and from, or between, spacecraft may itself have wider implications and is another aspect considered in the paper. In summary, the paper does not seek to introduce new design concepts, but appraises the situation and exposes indicators concerning cost effectiveness.

(Author)

A80-18832 Properties of gases and petroleum liquids derived from terrestrial kerogen at various maturation levels. J. Connan and A. M. Cassou (Société Nationale Elf-Aquitaine /Production/, Département Laboratoire de Géologie, Pau, Pyrénées-Atlantiques, France). Geochimica et Cosmochimica Acta, vol. 44, Jan. 1980, p. 1-23. 48 refs.

The paper presents a study dealing mainly with shale-sandstone series in which the disseminated kerogen is mostly composed of land-derived debris. Organic matter was characterized by microscopic and chemical techniques, while the kerogen maturity was assessed by microscopic studies, mainly by means of vitrinite reflectance measurements. The oil and gas properties are tentatively interpreted in terms of maturity, using a comparison of oil properties with the kerogen features of shales interbedded in the impregnated sandstone reservoirs. In low maturity stages (immature zone), dry gas with minor condensate is observed, whereas in higher maturity levels (oil window), wet gas with high paraffinic crudes is generally recorded. Shallow depth condensates and their related gases have been identified as immature fluids. In conclusion, it is noted that the study offers a maturity frame work as a guide for oil and gas prediction in shale sandstone sequences containing land derived kerogen. M.E.P.

A80-18833 The distribution of sulfur and organic matter in various fractions of peat - Origins of sulfur in coal. D. J. Casagrande, K. Gronli, and N. Sutton (Governors State University, Park Forest South, III.). Geochimica et Cosmochimica Acta, vol. 44, Jan. 1980, p. 25-32. 25 refs. Research supported by the Governors State University and NSF.

A80-18849 # Pollution aspects of oilfired and coalfired boilers. C. M. Deshpande and S. C. Kale (Associated Industrial Consultants, Bombay, India). *Indian Journal of Air Pollution Control*, vol. 2, Jan. 1979, p. 24-28.

A80-18859 First experiences with the use of impactors in large power plants (Erste Betriebserfahrungen über den Einsatz von Impaktoren in Grosskraftwerken). W. Jockel (Technischer Überwachungsverein Rheinland, Cologne, West Germany). (Internationales Kolloquium über polycyclische aromatische Kohlenwasserstoffe, Hanover, West Germany, Sept. 18-21, 1979.) Staub - Reinhaltung der Luft, vol. 39, Dec. 1979, p. 474-475. In German.

In conjunction with gravimetric dust measurements with a filter head device, the grain distribution of pure gas dust was determined by means of a cascade impactor. The measurements were made in the flue gas of a powerplant fuelled by bituminous coal. The equipment consisted of an Andersen Mark III impactor which was equipped with a manual partial flow sampling system instead of a filter head device. Attention is given to the preparation of the fiberglass filter, operation of the impactor, and evaluation of the results.

M.E.P.

A80-18861 Experiences with the practical use of an Andersen cascade impactor in the exhaust gas of various industrial sites (Erfahrungen beim praktischen Einsatz eines Andersen-Kaskadenimpaktors im Abgas verschiedener Industrieanlagen). K. Lützke and W. Muhr (Rheinisch-Westfälischer Technischer Überwachungsverein, Essen, West Germany). (Internationales Kolloquium über polycyclische aromatische Kohlenwasserstoffe, Hanover, West Germany, Sept. 18-21, 1979.) Staub - Reinhaltung der Luft, vol. 39, Dec. 1979, p. 477, 478. In German.

A80-18868 Gasification of solid waste in a fluidized bed reactor with circulating sand. M. Hasegawa, J. Fukuda (Tsukishima Kikai Co., Ltd., Tokyo, Japan), and D. Kunii (Tokyo, University, Tokyo, Japan). Conservation and Recycling, vol. 3, no. 2, 1979, p. 143-153. Research supported by the Ministry of International Trade

The paper reports on the operation of a demonstration plant in Japan using a process which can gasify a variety of solid materials such as organic sludge, waste plastics, municipal wastes and spent tires. It is shown that plastic rubbish is particularly suitable as a feedstock for this process which can produce a considerable amount of clean fuel gas with a high calorific value. It is concluded that the operability, safety and flexibility of the demonstration plant verified the adequate application of the process for pollution-free treatment of solid materials.

M.E.P.

A80-18870 The microbial production of methane from household wastes - Fixed-bed anaerobic digestion. N. W. Le Roux, D. S. Wakerley, and M. N. Simpson (Warren Spring Laboratory, Stevenage, Herts., England). *Conservation and Recycling*, vol. 3, no. 2, 1979, p. 165-174. 18 refs.

Putrescible fractions of sorted household waste were anaero-bically digested in fixed-bed tests. At 30 C, digestion was almost completed in 60 days when unfragmented waste was inoculated and submerged with digested sludge. The gas yield was approximately 0.12 cu m/kg of putrescible waste with an average composition of 58% CH4 + 42% CO2, but initially the percentage of methane was low. With water, instead of a digested sludge inoculum, about 160 days was required for digestion. Digestion of fragmented waste, even with CaCO3, was slower than with unfragmented material. At 15 plus or minus 3 C the digestion of inoculated fragmented waste required about 280 days. Practical and economic aspects of operating fixed-bed methane fermentations are discussed. (Author)

A80-18871 The basics of magnetic separation as applied to municipal solid waste reclamation plants. E. H. Richard (Magnetics International, Inc., Maple Heights, Ohio; Stearns Magnetics, Inc., Cudahy, Wis.). Conservation and Recycling, vol. 3, no. 2, 1979, p. 187-197. 5 refs.

Magnetic separation of ferrous metallics from municipal solid waste is based on technology developed for, and profitably applied to, ore beneficiation, slag reclamation, automobile shredding, and scrap processing industries. No one system or type of magnet can be used for all ferrous waste recovery. Above all, the system must initially be engineered into the process to provide recovery of a product that is readily marketable. Various magnet arrangements in the recovery system separate, clean and transport the recycled ferrous material. There are a number of basic magnetic system configurations and typical applications, some of which are presented here. (Author)

A80-18883 Control technology for coal-fired combustion in Northeastern U.S. A - Overview and sulfur emissions control. B - Particulates, NOx and combined systems. E. N. Ziegler and R. E. Meyers (Brookhaven National Laboratory, Upton, N.Y.). Water, Air, and Soil Pollution, vol. 12, Oct. 1979, p. 355-369, 371-381. 111 refs.

The status of air pollution control technology for coal-fired industrial and power plant boilers has been surveyed. Lime and limestone based scrubbers are capable of removing as much as 93% of flue gas SO2 at facilities supplying 800 MW power. The Wellman-Lord, thiosorbic, and citrate processes are capable of producing salable products instead of the sludge. Electrostatic precipitators, the major control device for removing particulates, can eliminate 99.5% of the fine particles. Fabric filtration can remove 99.9% and is more efficient in the 0.2 to 2 micron size range than ESPs. Utilization of fabric filters is expected to increase significantly from its present 5% of the particulate removal market. Nitrogen oxide concentrations in coal fired systems are usually reduced by modification of the combustion system. Various process capital and annualized costs are reported for SO2 and particulate removal systems. The status of fluidized bed combustion, fuel desulfurization, conversion of coal to gaseous and figuid fuels, and flue gas denitrification is also discussed. Part A deals with S emissions; Part B with NOx, particulates, and combined systems.

A80-18990 Principles of photoelectrochemical solar energy conversion. M. A. Butler and D. S. Ginley (Sandia Laboratories, Albuquerque, N. Mex.). *Journal of Materials Science*, vol. 15, Jan. 1980, p. 1-19. 66 refs. Contract No. DE-AC04-76DP00789.

Photoelectrochemical devices for conversion of solar energy into both electrical energy and chemical energy are discussed with emphasis on how the various material properties of the photoactive electrodes influence device efficiency and stability. The similarity between photoelectrochemical cells (PECs) and solid state devices is used to model their behavior and optimize such parameters as band gap, doping level, minority carrier lifetime, etc. A model is presented which calculates the electron affinity of any semiconductor and allows the prediction of the open circuit voltage of wet photovoltaic cells and optimum biasing for chemical producing cells. The effects of absorbed ions at the semiconductor/electrolyte interface are reviewed. The temperature dependence of the energy levels in the semiconductor and the electrolyte are considered and the implications of these results to operation of PECs at elevated temperature are discussed. The major differences between PECs and solid state devices are the stability considerations. The thermodynamics of this problem is discussed. Other important degradation mechanisms and some solutions to these problems are reviewed. Finally, a prognosis of the future of this field is presented. (Author)

A80-19000 On the substitution of petroleum by other energy sources - Using the energy economics of West Germany as an example (Zur Frage der Substitution von Mineralöl durch andere Energieträger - Dargestellt am Beispiel der Energiewirtschaft eines Bundeslandes). U. Dolinski and K.-D. Labahn. Energiewirtschaftliche Tagesfragen, vol. 29, Dec. 1979, p. 740-745. 6 refs. In German.

The paper discusses the necessity for substituting other energy sources for the rapidly decreasing amount of available petroleum as the demand increases. Three factors are important in developing alternate means: (1) the available supply possibilities of other energy sources, (2) the willingness to substitute of the oil users, as well as (3) the availability of technical substitution potential. Among the alternate sources examined are anthracite, ligneous coal, natural gas, nuclear power, electric energy, and remote heating systems. C.F.W.

A80-19031 Controllable d.c. power supply from wind-driven self-excited induction machines. D. B. Watson, J. Arrillaga (Canterbury, University, Christchurch, New Zealand), and T. Densem (New Zealand Electricity, Christchurch, New Zealand). *Institution of Electrical Engineers, Proceedings*, vol. 126, Dec. 1979, p. 1245-1248. 10 refs.

A variable-speed generating system is described which uses a 3-phase squirrel-cage induction machine with self-excitation capacitors. The variable-frequency/variable-voltage generated is then fed through a 3-phase controlled rectifier to provide a d.c. supply at constant voltage. The proposed scheme is suitable for wind power sources as it allows wide changes in wind turbine speed and, at all speeds, optimum generating power can be set up by rectifier delay angle control. (Author)

A80-19048 Heat flow and heat transfer conditions in the bottom sediments of the equatorial Indian Ocean. R. I. Kutas, M. I. Bevziuk, and V. F. Vygovskii (Akademiia Nauk Ukrainskoi SSR, Institut Geofiziki, Kiev, Ukrainian SSR). *Geothermics*, vol. 8, no. 1, 1979, p. 31-36. 9 refs.

The results are reported of heat flow determinations during the 10th and 11th cruises of the 'Akademik Vernadsky'. Geothermal gradients were measured by the thermograd PTG-2MTB, with two temperature sensors of 1 or 1.2 m spacing. The temperature sensors were fixed to the coring tube. The lower sensor penetrated the sediment to a depth of 2.5 m. On board determinations of thermal conductivity were made by one of two methods: the needle probe method and analysis of water content in sediments. Twenty-one heat flow measurements ranging from 4 to 120 mW/sq m have been obtained. The heat flow values depend on the type and granulometric composition of the sediments. High values are obtained on the southern slope of the Karlsberg Ridge, in the zones where bottom sediments have been found to have the maximum content of pelitic fraction and minimum of foraminifera. Low values of heat flow are due to a long-term effect of the ascending hydrothermal flow. This is confirmed by the traces of hydrothermal activity found in the sediments. (Author)

A80-19049 The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction. J. Hanson (California, University, Livermore, Calif.), K. Ahlbom, S. A. Larson, and G. Lind (Chalmers Tekniska Hogskola, Goteborg, Sweden). Geothermics, vol. 8, no. 1, 1979, p. 37-53. 19 refs. Contract No. W-7405-eng-48.

A80-19201 Workshop on Geothermal Resource Assessment and Reservoir Engineering, Larderello, Italy, September 12-16, 1977, Proceedings. Workshop sponsored by the Ente Nazionale per l'Energia Elettrica and ERDA. Edited by E. Barbier. Geothermics, vol. 7, no. 2-4, 1978. 225 p.

Activity in reservoir physics and engineering and resource assessment (particularly in central and southern Tuscany) in the field of geothermal research and development is reported. Pressure transient studies made from well tests in the geologically and hydrologically complicated Travale-Radicondoli (Italy) reservoir, as well as an analysis of pressure and of decline curves in the Serrazzano reservoir are presented. In addition, the thermodynamic behavior of the Bagnore geothermal field, reservoir performance of the Geysers Field (Calif.), and an evaluation of Baltazor known geothermal

resources area (Nevada), are discussed, and an estimate of the resource potential of New Zealand geothermal fields for power generation is presented.

J.P.B.

A80-19202 Methods for regional assessment of geothermal resources. P. Muffler (U.S. Geological Survey, Menlo Park, Calif.) and R. Cataldi (Ente Nazionale per l'Energia Elettrica, Centro Ricerca Geotermica, Pisa, Italy). (Ente Nazionale per l'Energia Elettrica and ERDA, Workshop on Geothermal Resource Assessment and Reservoir Engineering, Larderello, Italy, Sept. 12-16, 1977.) Geothermics, vol. 7, no. 2-4, 1978, p. 53-89. 61 refs.

The paper describes the EEA-3/1 geothermal assessment methodology developed jointly by the United States and Italy. The goals of EEA-3/1 were: (1) to provide a comprehensive evaluation of geothermal resource assessment techniques in a report that can serve as a basis for future discussion and refinement of assessment methodology; (2) to propose geothermal resources methodology that is compatible with established usage in the mining and petroleum industries, yet takes into account the peculiar characteristics of geothermal energy; (3) to propose a methodology for forthcoming refinements and revisions of geothermal resource assessment in the United States and Italy; and (4) to stimulate the careful attention of geothermal resources specialists to questions of geothermal resources methodology, particularly with respect to terminology, assumptions, limitations, and documentation.

B.J.

A80-19203 Assessment of geothermal potential of central and southern Tuscany. R. Cataldi (Ente Nazionale per l'Energia Nucleare, Centro Ricerca Geotermica, Pisa, Italy), A. Lazzarotto (Siena, Università, Siena, Italy), P. Muffler (U.S. Geological Survey, Menlo Park, Calif.), P. Squarci (CNR, Istituto Internazionale per le Ricerche Geotermiche, Pisa, Italy), and G. Stefani (Ente Nazionale per l'Energia Elettrica, Florence, Italy). (Ente Nazionale per l'Energia Elettrica and ERDA, Work shop on Geothermal Resource Assessment and Reservoir Engineering, Larderello, Italy, Sept. 12-16, 1977.) Geothermics, vol. 7, no. 2-4, 1978, p. 91-131. 13 refs.

A80-19204 Analysis of reservoir pressure and decline curves in Serrazzano zone, Larderello geothermal field. P. Atkinson (Union Oil Company of California, Santa Rosa, Calif.), F. G. Miller (Stanford University, Stanford, Calif.), R. Marconcini, G. Neri (Ente Nazionale per l'Energia Elettrica, Gruppo Minerario, Larderello, Italy), and R. Celati (CNR, Istituto Internazionale per le Ricerche Geotermiche, Pisa, Italy). (Ente Nazionale per l'Energia Elettrica and ERDA, Workshop on Geothermal Resource Assessment and Reservoir Engineering, Larderello, Italy, Sept. 12-16, 1977.) Geothermics, vol. 7, no. 2-4, 1978, p. 133-144, 9 refs.

An estimate of reserves in the Serrazzano reservoir was obtained from mass balance studies and production decline curve analyses. The straight-line p/z vs cumulative production material balance relationship was applied to vapor-dominated geothermal reservoirs. Furthermore, an empirical type curve matching technique was applied to the production decline curves of wells in the reservoir; an estimated total production (past and future) of 200,000,000 tons was obtained. The agreement between the estimated total production using material balance principles and decline curve analyses was found to be remarkably good.

A80-19205 Thermodynamic behaviour of the Bagnore geothermal field. P. Atkinson (Union Oil Company of California, Santa Rosa, Calif.), R. Celati (CNR, Istituto Internazionale per le Ricerche Geotermiche, Pisa, Italy), R. Corsi (Ente Nazionale per l'Energia Elettrica, Centro Ricerca Geotermica, Pisa, Italy), F. Kucuk (Science Applications, Inc., Morgantown, W. Va.), and H. J. Ramey, Jr. (Stanford University, Stanford, Calif.). (Ente Nazionale per l'Energia Elettrica and ERDA, Workshop on Geothermal Resource Assessment and Reservoir Engineering, Larderello, Italy, Sept. 12-16, 1977.) Geothermics, vol. 7, no. 2-4, 1978, p. 185-208. 10 refs.

The paper examines the thermodynamic behavior of the Bagnore, Italy, geothermal field. Hydrogeological data and the history of watering-out of wells on the field periphery were

examined, noting that the depth of fracture in these wells can be correlated with the gas-water interface in the reservoir. A mathematical model which accounts for thermodynamic and chemical equilibria between the vapor, liquid, and solid carbonate phases in the reservoir was applied to a study of initial conditions in the reservoir; a lumped-parameter CO2-H2O liquid-vapor model was used to calculate history of pressure and composition for the reservoir. The research confirms the existence of a large accumulation of noncondensable gas in the reservoir drawn off during the first years of exploitation; calculations with the producing-state lumped-parameter model indicate that the long-term producing concentration of CO2 cannot be accounted for by assuming reasonable amounts of CO2-saturated liquid-water influx.

A80-19206 Evaluation of Baltazor known geothermal resources area, Nevada. W. F. Isherwood and D. R. Mabey (U.S. Geological Survey, Menlo Park, Calif.). (Ente Nazionale per l'Energia Elettrica and ERDA, Workshop on Geothermal Resource Assessment and Reservoir Engineering, Larderello, Italy, Sept. 12-16, 1977.) Geothermics, vol. 7, no. 2-4, 1978, p. 221-229. 9 refs.

By virtue of the Geothermal Steam Act of 1970, the U.S. Geological Survey is required to appraise geothermal resources of the United States prior to competitive lease sales. This appraisal involves coordinated input from a variety of disciplines, starting with reconnaissance geology and geophysics. This paper describes how the results of several geophysical methods used in KGRA evaluation were interpreted by the authors, two geophysicists, involved with both the Evaluation Committee and the research program responsible for obtaining and interpreting the geophysical data to be used by the committee. (Author)

A80-19207 The United Nations' approach to geothermal resource assessment. J. R. McNitt. (Ente Nazionale per l'Energia Elettrica and ERDA, Workshop on Geothermal Resource Assessment and Reservoir Engineering, Larderello, Italy, Sept. 12-16, 1977.) Geothermics, vol. 7, no. 2-4, 1978, p. 231-242. 49 refs.

Although the emphasis of United Nations' assisted geothermal projects has been on demonstrating the feasibility of producing geothermal fluids, the potential capacity of individual fields has been estimated by both the energy in place and decline curve methods. The energy in place method has been applied to three geothermal fields resulting in total resource estimates ranging from 380 to 16,800 MW-yr. The decline curve method has not given quantitative results concerning ultimate field potential because of the relatively short duration of well tests (several weeks to a maximum of 11 months). A new method for making regional assessment of geothermal potential is described, which is based, in part, on an assessment of the probable range of the power potential of geothermal fields as inferred from a frequency distribution analysis of fields already under development throughout the world. Depending on the reservoir containing dry steam or water, and its location in a region of groundwater recharge or discharge, average power potentials can be expected to range from 36 to 3360 MW. (Author)

A80-19208 An estimate of the resource potential of New Zealand geothermal fields for power generation. I. G. Donaldson (Department of Scientific and Industrial Research, Physics and Engineering Laboratory, Lower Hutt, New Zealand) and M. A. Grant (Department of Scientific and Industrial Research, Applied Mathematics Div., Wellington, New Zealand). (Ente Nazionale per l'Energia Elettrica and ERDA, Workshop on Geothermal Resource Assessment and Reservoir Engineering, Larderello, Italy, Sept. 12-16, 1977.) Geothermics, vol. 7, no. 2-4, 1978, p. 243-252. 5 refs.

The basic similarity between most of the New Zealand geothermal fields suggests that the exploited fields of Wairakei and Broadlands can be used as indicators of the potential of other fields as resources for steam for power production. Assuming adequate permeability will be obtained in fields yet to be tested, the two parameters controlling this potential are areal extent (as defined by resistivity survey) and temperature at depth. As most field temperatures are bracketed by Wairakei (270 C maximum) and Broadlands

(310 C maximum), field potential per unit area should also be bracketed by the field potentials per unit area of these two fields, i.e. Wairakei at 10-11 MWe per sq km and Broadlands at 12-14 MWe per sq km. Based upon present knowledge of the fields in question it may be possible to assess their proven, inferred and speculative reserves. Our totals for all fields of 450 MWe proven, 750 MWe inferred and 1300 MWe speculative suggests that New Zealand has some 1300-2500 MWe available from its geothermal resources should it desire to exploit these for electrical power. (Author)

A80-19209 Transient-pressure analysis in geothermal steam reservoirs with an immobile vaporizing liquid phase. A. F. Moench (U.S. Geological Survey, Menlo Park, Calif.) and P. G. Atkinson (Union Oil Company of California, Santa Rosa, Calif.). (Ente Nazionale per l'Energia Elettrica and ERDA, Workshop on Geothermal Resource Assessment and Reservoir Engineering, Larderello, Italy, Sept. 12-16, 1977.) Geothermics, vol. 7, no. 2-4, 1978, p. 253-264. 14 refs. Research supported by the Ente Nazionale per l'Energia Elettrica, ERDA, and NSF.

A finite-difference model for the radial horizontal flow of steam through a porous medium is used to evaluate transient-pressure behavior in the presence of an immobile vaporizing or condensing liquid phase. Graphs of pressure drawdown and buildup in terms of dimensionless pressure and time are obtained for a well discharging steam at a constant mass flow rate for a specified time. The assumptions are made that the steam is in local thermal equilibrium with the reservoir rocks, the temperature changes are due only to phase change, and that effects of vapor-pressure lowering are negligible. Computations show that when a vaporizing liquid phase is present the pressure drawdown exhibits behavior similar to that observed in noncondensable gas reservoirs, but delayed in time. A theoretical analysis allows for the computation of this delay and demonstrates that it is independent of flow geometry. The response that occurs upon pressure buildup is markedly different from that in a noncondensable gas system. This result may provide a diagnostic tool for establishing the existence of phase-change phenomena within a reservoir.

A80-19275 # Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels. S. E. Najim, A. C. Styles, and N. Syred (University College, Cardiff, Wales). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0075. 8 p. 13 refs. Research supported by the Science Research Council.

This paper describes an experimental investigation in which the combustion of low calorific value gases in a cyclone combustor are simulated by dilute mixtures of natural gas and air (mixture ratio = 1.68). The flame front formed is annular and is located close to the chamber walls. Detailed measurements of the combustion aerodynamics and pollution characteristics of the burner are presented which show low flame front temperatures, i.e. 1200 C, and negligible NO emissions throughout the cyclone chamber, in which complete burnout of fuel occurs. Refractory lining of the cyclone chamber is shown to improve performance by 40% with further increases possible by insulation of the inlet/outlet manifold and an increase in the strength of the annular recirculation zone. Comparison is made of the mean and fluctuating values of three components of velocity, measured by laser Doppler anemometry, for both isothermal and combustion conditions. (Author)

A80-19304 # Heat transfer including radiation and slag particles evolution in MHD channel. I. K. H. Im and R. K. Ahluwalia (Argonne National Laboratory, Argonne, III.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0250. 13 p. 13 refs. Contract No. W-31-109-eng-38.

Accurate estimates of convective and radiative heat transfer in the magnetohydrodynamic channel are provided. Calculations performed for a base load-size channel indicate that heat transfer by gas radiation almost equals that by convection for smooth walls, and

amounts to 70% as much as the convective heat transfer for rough walls. Carbon dioxide, water vapor, and potassium atoms are the principal participating gases. The evolution of slag particles by homogeneous nucleation and condensation is also investigated. The particle-size spectrum so computed is later utilized to analyze the radiation enhancement by slag particles in the MHD diffuser. The impact of the slag particle spectrum on the selection of a workable design of an efficient seed collection system is discussed. (Author)

A80-19309 # Power take-off analysis for diagonally connected MHD channels. Y.-C. Pan and E. D. Doss (Argonne National Laboratory, Argonne, III.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0253. 13 p. 16 refs. Contract No. W-31-109-eng-38.

The electrical loading of the power take-off region of diagonally connected MHD channels is investigated by a two-dimensional model. The study examines the loading schemes typical of those proposed for the U-25 and U-25 Bypass channels. The model is applicable for the following four cases: (1) connection with diodes only, (2) connection with diodes and equal resistors, (3) connection with diodes and variable resistances to obtain a given current distribution, and (4) connection with diodes and variable resistors under changing load. The analysis is applicable for the power take-off regions of single or multiple-output systems. The general behaviors of the current and the potential distributions in all four cases are discussed. The analytical results are in good agreement with the experimental data. It is found possible to design the electrical circuit of the channel in the take-off region so as to achieve a fairly even load current output under changing total load current. (Author)

A80-19310 \* # Effect of off-design operation of MHD generators on NO/x/ chemical kinetics. G. A. Simmons and D. R. Wilson (Texas, University, Arlington, Tex.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0254. 11 p. 27 refs. Grant No. NsG-3255.

The purpose of this study is to provide a capability for determining the chemical kinetic behavior of one family of pollutants, the nitrogen oxides, in the flow of a coal-fired MHD generator facility. The method used in the study allows the prediction of the nonequilibrium concentration of the minor NO(x) species in a flow otherwise assumed in equilibrium. Consideration is given to the effect of preheat, stoichiometry, and oxygen enrichment of the NO(x) concentration. The effect of preheat and stoichiometry is found to have a significant influence on the NO(x) concentration at the exit of the radiant boiler.

A80-19311 # Mach 3 hydrogen external/base burning. D. H. Neale, Sr., J. E. Hubbartt, and W. C. Strahle (Georgia Institute of Technology, Atlanta, Ga.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0280. 9 p.

Experimental studies of base pressure manipulation for an axisymmetric model at Mach 3 with simulated and actual external/base burning are described. Early work using contoured test section walls and cold gas base region injection is reviewed to demonstrate wake detail and length scale changes under the influence of simulated external/base burning. Tests with actual combustion of radially and axially injected hydrogen are then reported. Outstanding performance values with significant base drag reduction is shown for injection and burning directly in the near-wake (base burning). Current attempts at radial injection and burning in the free stream (external burning) have not yet succeeded. These tests, however, have defined an envelope within which external burning, if feasible, will presently be achieved. (Author)

A80-19326 # Solar concentrators using vacuum-contoured surfaces for tracking. W. Alexander and J. R. Howell (Texas, University, Austin, Tex.). American Institute of Aeronautics and

Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0399. 10 p. 8 refs.

The paper presents an analysis of solar concentrators using vacuum-contoured trough collectors for tracking. The analysis considers (1) the predicted radius of a flexible membrane subjected to a constant pressure differential, (2) methods of approximating a parabola with these circular shapes, (3) a computer program implementation, and (4) the nonideal effects which affect the mirror performance. It is shown that concentration ratios from 31 to 16 are obtained for incidence angles varying from normal to the trough to plus or minus 40 deg from normal at solar noon for two-segment collectors. Experimental results showing reflected beam profiles from the collector onto an absorber tube for trough collectors with f-numbers of 1.16 and 1.32 are presented and compared with predictions.

A80-19327 # A study of the solar LiBr dual cycle characteristics. H. Sofrata, A. Nasser, A. Shibl, and M. Megahed (Riyadh, University, Riyadh, Saudi Arabia). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0400. 7 p. 8 refs.

In arid zones the Li-Br dual cycle may be used in air-conditioning. It has the advantage of avoiding the use of cooling tower. It, also, has the advantage of being powered by solar energy. A computer programme has been developed during this course of research in order to design this dual cycle, fulfilling all its temperature constraints and heat balance equations. The characteristics of the dual cycle has also been studied at different environmental conditions. The output results of the computer programme may be displayed on a cathodic ray tube or stored in a field and presented graphically. This facilitates a complete vision and study of the precalculated results.

A80-19328 # Solar-thermal jet pumping for irrigation. L. D. Clements, P. A. Dellenback, and C. A. Bell (Texas Tech University, Lubbock, Tex.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0402. 6 p. 9 refs. Research supported by Texas Tech University.

This paper describes a novel concept in solar powered irrigation pumping, gives measured performance data for the pump unit, and projected system performance. The solar-thermal jet pumping concept is centered around a conventional jet eductor pump which is commercially available at low cost. The jet eductor pump is powered by moderate temperature, moderate pressure Refrigerant-113 vapor supplied by a concentrating solar collector field. The R-113 vapor is direct condensed by the produced water and the two fluids are separated at the surface. The water goes on to use and the R-113 is repressurized and returned to the solar field. The key issue in the solar-thermal jet eductor concept is the efficiency of pump operation. Performance data from a small scale experimental unit which utilizes an electrically heated poiler in place of the solar field is presented. The solar-thermal jet eductor concept is compared with other solar irrigation concepts and optimal application situations are identified. Though having lower efficiencies than existing Rankine cycle solar-thermal irrigation systems, the mechanical and operational simplicity of this concept make it competitive with other solar powered irrigation schemes. (Author)

A80-19421 The calculation of carbon load and axial profiles of oxygen concentration in the bed of a fluidized combustor. G. Donsì, L. Massimilla, M. Miccio, G. Russo, and P. Stecconi (CNR, Laboratorio di Ricerche sulla Combustione; Napoli, Università, Naples, Italy). Combustion Science and Technology, vol. 21, no. 1-2, 1979, p. 25-33. 23 refs.

A80-19471 Under ground thermal storage in the operation of solar ponds. A. Akbarzadeh and G. Ahmadi (Shiraz University, Shiraz, Iran). Energy (UK), vol. 4, Dec. 1979, p. 1119-1125. 14 refs. Research supported by the Ministry of Science and Higher Education of Iran.

The thermal interaction between a large solar pond and the surrounding ground is considered. For a given sinusoidal variation of the temperature at the bottom of the pond, the time-dependent temperature profiles in the ground are calculated and the corresponding heat fluxes to or from the ground as functions of time are obtained. The temperature variations in the ground for several years are plotted and the heat transfer between the solar pond and the ground thermal storage is discussed. The efficiency of heat recovery is studied and its significance is pointed out. (Author)

A80-19472 Solar enhanced oil recovery - An assessment of economic feasibility. K. D. Bergeron (Sandia Laboratories, Albuquerque, N. Mex.). Energy (UK), vol. 24, Dec. 1979, p. 1127-1137. 15 refs

There are several qualitative reasons why steam enhanced oil recovery (EOR) appears to be well suited to solar energy use. These include favorable characteristics with regard to energy utilization, land availability, energy form, and geographical location. A number of technical questions require further research before the characteristics of solar enhanced oil recovery (SEOR) can be precisely specified or optimum systems designed. However, a cost model based on a number of working assumptions indicates competitiveness with conventional fuel-burning EOR systems at crude prices and solar collector system costs which can be reasonably expected to occur in the near future; e.g., for a nominal parameter set, including a solar energy system cost of \$200/sq m, the breakeven crude oil price is \$11.90/bbl.). (Author)

A80-19473 Hydrogen and oxygen from water. II - Some considerations in the reduction of the idea to practice. R. B. Diver and E. A. Fletcher (Minnesota, University, Minneapolis, Minn.). *Energy* (UK), vol. 4, Dec. 1979, p. 1139-1150. 10 refs. Contract No. ER-78-S-02-4737.

An analytical model of a one-step thermochemical process for producing hydrogen and oxygen from water by solar energy is constructed to evaluate sources of inefficiency and their dependence on operating variables and system configuration. The process is based on effusional separation in the Knudsen flow regime. The model includes: solar collector, reactor-separator, heat recovery systems, and cooler and pumps. It was shown that irreversibility in the reactor-separator is small and essentially independent of the hydrogen demand and that the greatest losses occurred in heat exchangers. In practice, the cost of the hydrogen produced is more important than an arbitrarily defined system efficiency. The use of heat from the high temperature heat exchanger to drive a heat engine for operating pumps and the replacement of the heat pump by a low temperature solar collector might substantially improve the economy of the process.

A80-19474 Prospects for the near-term commercialization of shale oil in the United States. G. Marland (Oak Ridge Associated Universities, Inc., Oak Ridge, Tenn.). *Energy* (UK), vol. 4, Dec. 1979, p. 1161-1174. 38 refs. Research supported by the Exxon Research and Engineering Co.; Contract No. EY-76-C-05-0033.

Political, economic and environmental aspects of commercial exploitation of shale oil resources in the United States are discussed. The identified resources of the highest grade shale oil in the U.S. are estimated at more than 400 billion barrels and it is certain that oil can be produced with the energy yield greater than the energy investment. However, the cost of the oil and the environmental impact of its production are not known. Three bills providing economic incentives for the development of a shale oil industry have been introduced in the U.S. Congress and a \$3 per barrel tax credit is debated. Differences exist over the incentives and the environmental issues, such as air and water quality impacts, water supply problems, and solid waste disposal. These problems and financial risks involved impede the commercialization of shale oil.

V.L.

A80-19581 Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volumes 1 & 2. Symposium sponsored by EURATOM, CNR, Banca Cattolica del

Veneto, Cassa di Risparmio di Padovae Rovigo, and Istituto di Credito Fondiario, et al. Oxford and New York, Pergamon Press, 1979. Vol. 1, 633 p.; vol. 2, 500 p. Price of two volumes, \$178.50.

Papers are presented on the following subjects: the design of experimental fusion systems; fusion reactor system studies; plasma handling; power supplies; control of experimental systems and data processing; and toroidal magnet technology. Also considered are: tritium and blanket technology; vacuum and first wall technology; poloidal magnet systems; and large tokamaks.

B.J.

A80-19585 Testing and performance of the 30 kA ohmic heating system for ASDEX. H. Wedler, J. Gernhardt, G. Klement, and E. v. Mark (EURATOM and Max-Planck-Institut für Plasmaphysik, Garching, West Germany). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1. Oxford and New York, Pergamon Press, 1979, p. 43-48. 7 refs.

After installation of the 18 inner coils for the ohmic heating system (90 of 100 turns) of ASDEX the coils were successively run up to the full current strength of 30 kA. At the same time the radial and vertical motions of the individual OH coils and leads were systematically investigated with 60 displacement pickups. In a further test phase the tilt motion of the toroidal coils at the full toroidal field (45 kA, 28 kG) was measured. The results of these investigations are discussed in detail and an account is given of experience with the breaker system. (Author)

A80-19587 A new high beta reversed field pinch machine.
P. D. Wilcock (EURATOM and U.K. Atomic Energy Authority
Fusion Association, Culham Laboratory, Abingdon, Oxon, England).
In: Fusion technology 1978; Proceedings of the Tenth Symposium,
Padua, Italy, September 4-9, 1978. Volume 1.
Oxford and New York, Pergamon Press, 1979, p. 55-60, 5 refs.

The HBTX1A experiment is a toroidal reversed field pinch with a metal bellows vacuum vessel of major/minor radii of 802/259 mm, supported within a close-fitting aluminum stabilizing shell, with no external guard vacuum. A 1 volt second iron core is used on the experiment. The machine is currently under construction and will be powered primarily by a rearrangement of the capacitor banks of the HBTX1 machine. This paper lists the main parameters, describes the general layout of the machine and discusses the areas of conflict and difficulty in the design. (Author)

A80-19589 Numerical computations in the design of compact ignition experiments. G. Cenacchi, A. Taroni (Comitato Nazionale per l'Energia Nucleare, Centro di Calcolo, Bologna, Italy), and B. Coppi (MIT, Cambridge, Mass.). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1. Oxford and New York, Pergamon Press, 1979, p. 77-82, 7 refs.

A series of interconnected physical and engineering problems have been solved numerically for the analysis of compact devices designed to produce and confine D-T plasmas in regimes where the alpha-particle heating is important. Codes have been developed and used for the following problems: plasma transport processes and heating cycles; ideal MHD equilibrium configurations; design of the equilibrium field and of the air core transformer systems; evaluation of the current density, magnetic field and temperature distribution in the toroidal magnet. Results of the computations are presented. (Author)

A80-19592 Poloidal magnetic field design of a pulsed tokamak reactor. W. R. Spears (EURATOM and U.K. Atomic Energy Authority Fusion Association, Culham Laboratory, Abingdon, Oxon, England). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1.

Oxford and New York, Pergamon Press, 1979, p. 115-120.  $9 \, \text{refs}$ .

This report considers the poloidal magnetic field design of a pulsed tokamak reactor with an air-cored transformer. Vertical field coil configurations are obtained for nominal plasma parameters by a Fourier analysis technique. The primary current configuration is calculated on the assumption that it creates zero field in the plasma region. After some general conclusions on conductor location have been reached, they are applied to the design of a 600 MWe reactor with noncircular plasma cross section and beta approximately equal to 8%. (Author)

A80-19593 Optimization of stabilized imploding liner fusion reactors. P. J. Turchi, D. L. Book (U.S. Navy, Naval Research Laboratory, Washington, D.C.), and R. L. Burton (JAYCOR, Alexandria, Va.). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1.

Oxford and New York, Pergamon Press, 1979, p.

121-125. 16 refs. Research supported by the U.S. Department of Energy and U.S. Navy.

In the NRL LINUS concept for controlled fusion systems, a rotating liquid metal cylinder or liner is imploded onto a trapped plasma/magnetic field payload to obtain fusion temperatures and near-megagauss magnetic field levels by adiabatic compression. The combined use of liner rotation and a free-piston driving technique eliminates Rayleigh-Taylor instabilities and permits safe, repetitive implosion-reexpansion cycles. Optimization of system size is accomplished in terms of the implosion radius-ratio and liner compressibility. Trade-offs between reactor size and initial plasma temperature are indicated. (Author)

A80-19594 Influence of the scaling of plasma confinement on the economy and unit size of ignited toroidal reactors. G. Realini (EURATOM and Comitato Nazionale per l'Energia Nucleare, Centro Comune di Ricerche, Ispra, Italy) and F. Engelmann (EURATOM and Stichting voor Fundamenteel Onderzoek der Materie, Institut voor Plasma-fysica, Jutphaas, Netherlands; EURATOM and Comitato Nazionale per l'Energia Nucleare, Centro sui Gas Ionizzati, Frascati, Italy). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1.

Oxford and New York, Pergamon Press, 1979, p. 127-132. 7 refs. Research supported by the Nederlandse Organisatie voor Zuiver-Wetenschappelijk Onderzoek.

The importance of the scaling of energy confinement for reactor economy is discussed both qualitatively and quantitatively. For the latter, the neoclassical, trapped-ion Alcator and Hugill-Sheffield confinement models are considered. Confinement laws for which confinement impairs strongly with increasing temperature, are shown to be particularly favorable. In particular, trapped-ion scaling increases reactor economy by about a factor 2 with respect to the other models considered. Furthermore, at fixed wall loading, it permits units having a 3 to 4 times smaller power. (Author)

A80-19596 The effect of classical and anomalous transport on the performance of Tandem Mirror reactors. T. Kammash and D. L. Galbraith (Michigan, University, Ann Arbor, Mich.). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1.

Oxford and New York, Pergamon Press, 1979, p. 141-146. 8 refs. Research supported by the U.S. Department of Energy and Electric Power Research Institute.

The particle and energy balance equations for a multispecies plasma in a Tandem Mirror reactor are solved numerically to assess the impact of cross field classical and anomalous transport on the Q-value of the reactor. It is shown that for commonly chosen values of magnetic fields and solenoid to plugs volume ratio Q values of 4-5 are attainable if the alpha particles are completely and selectively removed. It is also shown that these Q-values are significantly reduced when all the species in the central cell are allowed to undergo classical and/or anomalous diffusion across the confining magnetic field. (Author)

A80-19597 SISYFUS - A simulation model for systematic analyses of fusion power plants. K. Borrass, R. Buende, and W. Daenner (EURATOM and Max-Planck-Institut für Plasmaphysik,

Garching, West Germany). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1. Oxford and New York, Pergamon Press, 1979, p. 161-167. 7 refs. EURATOM-sponsored research.

The paper describes how the SISYFUS code, which simulates the performance of a fusion power plant as a function of time, is improved and extended. It is shown that as a first step a tokamak reactor was included and the useful plant output restricted to electricity. As a first application, the plant energy balance is used to calculate the influence of the accumulation of alpha particles and impurities, which is measured by differences in the plasma minor radius. Similarly, the influence of variations in beta, reactor idle time, and plant net power output is investigated. Finally, because of the trend towards very compact tokamak designs, assumptions and conditions are identified which yield a considerable reduction in size.

A80-19599 Doublet III neutral beam injection system overview and status report. M. M. Holland, E. W. Bailey, A. P. Colleraine, H. C. Courington, D. W. Doll, C. R. Harder, H. L. Horner, J. H. Kamperschroer, K. A. Koch, and J. C. Kohli (General Atomic Co., San Diego, Calif.). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1. Oxford and New York, Pergamon Press, 1979, p. 199-206. Contract No. CY-76-C-03-0167.

It is noted that the Doublet III tokamak is designed to operate initially with a toroidal magnetic field of 2.6 T, 5 V-sec of ohmic heating flux swing, a plasma current of 2 MA, and a plasma temperature of 1 keV. Attention is given to a plan to add two 80 keV hydrogen neutral beam injectors to produce about 3 keV temperatures utilizing about 7 MW of auxiliary beam heating. This will lead to the ultimate construction of a 20 MW, six injector system to produce reactor-grade plasmas in excess of 5 keV which will simulate breakeven conditions. The system and facility design is surveyed with emphasis on the cryogenic system and test facility. Finally, a brief discussion of the schedule and the status of construction and fabrication is also presented.

A80-19600 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks. J. H. Kamperschroer, A. P. Colleraine (General Atomic Co., San Diego, Calif.), and L. D. Stewart. In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1.

Oxford and New York, Pergamon Press, 1979, p. 217-222. Contracts No. EY-76-C-03-0167; No. EY-76-C-02-3073.

Experimental evidence obtained with the Princeton Large Torus, PLT, neutral beam injectors at both the Oak Ridge National Laboratory and at Princeton has indicated that the transport of neutral beams through conductance limited drift ducts can induce exponentiating beam loss and subsequent beam blocking. Evidence indicates that beam loss on the drift duct wall causes thermally induced outgassing of absorbed hydrogen gas. Application of such a model will be shown to yield predictions which agree both in magnitude and time dependence with the observed results. (Author)

A80-19608 Design of antennae for R.F. power coupling to tokamak plasma in the ion cyclotron range of frequency. J. Adam, A. Darbandi, J. Jacquinot, and H. Kuus (EURATOM and Commissariat à l'Energie Atomique sur la Fusion, Département de Physique du Plasma et de la Fusion Contrôlée, Fontenay-aux-Roses, Hauts-de-Seine, France). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1. Oxford and New York, Pergamon Press, 1979, p.

263-267.

Additional heating of present day tokamak plasma in the ion cyclotron range of frequency requires coupling antennae located inside the vacuum chamber. Since the limiting factor in RF power transfer to the plasma is the voltage which can be supported by the antenna, efficient coupling calls for optimum current for a given RF supply voltage. Three antennae, designed for the TFR tokamak will be discussed. (Author)

A80-19611 Refueling by means of pellets - Ablation rate and injection velocity considerations. L. L. Lengyel and D. F. Düchs (EURATOM and Max-Planck-Institut für Plasmaphysik, Garching, West Germany). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1.

Oxford and New York, Pergamon Press, 1979, p. 283-288. 7 refs.

Pellet ablation rates computed with the help of different ablation models are compared. For investigating the response of the plasma to the injected pellet, the ablation models are combined with a multiregime tokamak transport code. The results indicate that the ionization dynamics of the ablated particles has a strong effect on the particle losses in divertor tokamaks: high pellet injection velocities may be required for compensating the substantial particle

losses caused by supplying cold neutral particles to the plasma.

(Author)

A80-19612 MeV cluster ion beam diagnostics by means of calorimetry and time-of-flight spectroscopy. H. O. Moser (Karlsruhe, Kernforschungszentrum, Karlsruhe, West Germany), J. Martin, and R. Salin (Lyon, Institut de Physique Nucléaire, Lyons, France). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1.

Oxford and New York, Pergamon Press, 1979, p. 289-294. 9 refs.

A system for the diagnostics of MeV cluster ion beams has been developed. It is based on time-of-flight mass spectrometry and calorimetric measurement of ion currents and allows for the measurement of the cluster ion mass spectrum and the ion and atom current profiles. The beam of the Lyon high-gradient cluster ion accelerator has been investigated. The results presented show mass spectra in the range of 1000-10,000 atoms per cluster. As a consequence of high-gradient acceleration the cluster ions exhibit a narrow kinetic energy spectrum. The minimum beam divergence is less than 1.2 deg. The atom currents and current densities lie in the range of 0.1-0.5 A and 0.2-1.0 A/sq cm, respectively, at a beam energy of 0.5 MeV per cluster ion and at a source-detector distance of about 1.9 m. The current densities exceed the space charge limit of a proton beam at the same kinetic energy and with the same beam geometry, by several orders of magnitude. (Author)

A80-19617

150-kV, 80-A solid state power supply for neutral beam injection. H. Owren, W. Baker, D. Hopkins, and K. Milnes (California, University, Berkeley, Calif.). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1.

Oxford and New York, Pergamon Press, 1979, p. 325-330.

A 150-kV, 80-A power supply and neutral beam test facility is now operational at the Lawrence Berkeley Laboratory, Berkeley, Calif. This supply uses banks of 450-V electrolytic capacitors for over one million joules of energy storage. SCR switches control the power flow to the neutral beam accelerator. Turn on and off times of a few microseconds are possible. An auxiliary capacitor bank also uses SCR switches to provide regulation ('flat-topping') of the main bank output by switching in additional capacitors as the main bank discharges. Air-operated switches are used to connect the main-bank sections in parallel for charging and series or parallel for discharge, depending on the operating voltage desired. (Author)

A80-19618 Construction and test of a high power injector of hydrogen cluster ions. E. W. Becker, H. D. Falter, O. F. Hagena, P. R. W. Henkes, R. Klingelhöfer, H. O. Moser, W. Obert, and I. Poth (Karlsruhe, Kernforschungszentrum, Karlsruhe, West Germany). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1. Oxford and New York, Pergamon Press, 1979, p. 331-337. 12 refs.

A high power injector of hydrogen cluster ions, rated for 1 MV and 100 kW, is described. The injector is split in three separate tanks connected by a 1 MV transfer line. The cluster ion beam source and all its auxiliary equipment is placed at high voltage, insulated by SF6 gas at a pressure of 4 bar. The main components of the injector are: The cluster ion beam source with integrated helium cryopumps, the CERN type acceleration tube with 750 mm i. d., the beam dump

designed to handle the mass and energy flux under dc conditions, a 1 MV high voltage terminal for the auxiliary equipment supplied by its 40 kVA power supply with power, and the 1 MV 120 kW dc high voltage generator. This injector is installed in Karlsruhe. Performance tests were carried out successfully. It is intended to use this injector for refueling experiments at the ASDEX tokamak. (Author)

A80-19619 The application of computers to fusion experimental facilities. M. C. Crowley-Milling (Organisation Européenne pour la Recherche Nucléaire, Geneva, Switzerland). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1.

Oxford and New York, Pergamon Press. 1979. p. 341-355.

The reasons for employing computers in control and data acquisition in fusion experimental facilities are discussed. Special requirements are examined when applying computers, interface equipment, software and other operator interfaces to fusion experiments. Some requirements that are mentioned are (1) the recording of maximum data amounts per shot, and (2) the archiving of data from previous shots with simple recall methods. Attention is given to various computer system layouts for fusion experiments including TEXTOR, TORUS II, and JET, and to the software and interface systems. The paper is concluded with a look at possible future developments such as towards simple and cheap devices that can be used to bring computing power into mass production with little cost increase.

C.F.W.

A80-19620 Electrical power system to TFTR poloidal coils. G. Karady, P. Bellomo, F. Petree (Ebasco Services, Inc., Princeton, N.J.), and R. Cassel (Princeton University, Princeton, N.J.). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1.

Oxford and New York, Pergamon Press, 1979, p. 359-364. 6 refs. Contract No. EY-76-C-02-3093.

This paper describes the Tokamak Fusion Test Reactor Ohmic Heating (OH), Variable Curvature (VC), Equilibrium Field (EF) and Horizontal Field (HF) Systems. The system design consists of five OH coils, four EF coils, one VC coil, one HF coil and one shared EF-OH coil. Interlaced between OH coils are six 3 kV, 24 kA converters, shunted by an OH interrupter and coil overvoltage protection circuitry. Interlaced between EF coils are four 4 kV, 24 kA converters, a 3 MJ capacitor bank and coil overvoltage protection circuitry. The four 3 MJ capacitor banks are used for plasma compression. An interesting feature of the poloidal system is the application of switchgear which allows arrangement of the EF capacitor banks either for plasma compression during experimental operation or for aggressive discharge cleaning of the vacuum vessel. (Author)

A80-19621 The combined d.c. power supply for JET. D. Ciscato (EURATOM and CNR, Abingdon, Oxon, England) and E. Coccorese (Calabria, Università, Abingdon, Oxon, England). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1. Oxford and New York, Pergamon Press, 1979, p. 365-370.

In view of the possibility that the Joint European Torus (JET) experiment could include a high energy pulse, a combined Power Supply scheme has been envisaged which makes use both of Flywheel-Generator-Convertors (FGC) and of the public network. The paper deals with the design of the new scheme, including two 400/33 kW step-down transformers, taking into account the limits on the reactive power and voltage drop at the 400 kV line. The analysis is performed through a comprehensive computer simulation program developed for this purpose. The results of the simulation and the final design with the rating of major equipment are given. (Author)

A80-19624 Constant current and constant voltage excitation of large coils by flywheel-generator-converter. J. Kodaira, A. Miyahara, K. Matsuura (Nagoya University, Nagoya, Japan), K. Hirayama, S. Nohara, and Y. Hirata (Toshiba Corp., Fuchu, Japan).

In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1.

Oxford and New York, Pergamon Press, 1979, p. 383-388.

The excitation of large dc coils by feedback to the exciter of the flywheel-generator-converter is an important problem regarding large fusion devices. This paper examines experimental data on the excitation of the toroidal and helical coils of the JIPP-T-2 tokamakstellarator hybrid and the main solenoidal coils of the RFC-XX double cusped machine by a 100 MW flywheel-generator-converter. Results are presented on the direct-current and dc-voltage operation of these coils.

A80-19629 Ignitron switching problems associated with a large reversed field pinch experiment. P. M. Barnes, R. A. Burden, and J. W. Gray (EURATOM and U.K. Atomic Energy Authority Fusion Association, Culham Laboratory, Abingdon, Oxon, England). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1. Oxford and New York, Pergamon Press, 1979, p. 413-418.

The switching requirements for the main toroidal (I sub theta) and poloidal (I sub z) field systems for a large reversed field pinch (FRP) experiment are discussed. Both field systems are capacitor driven with a total start bank energy of 5MJ at 8kV. Circuit analysis is given showing the requirement for partial oscillatory discharge currents from the start banks and also the need for an extended clamping range outside the conventional second quadrant. In order to meet these requirements using ignitron switching it is necessary to connect the ignitrons in 'inverse-parallel' pairs. This allows commutation of the main current at current zero in order to prevent any excess reverse current flow through the ignitron, and also prevents the extinction of main current as it passes through zero at low values of di/dt. This 'inverse-parallel' connection also allows the clamping range to be extended over the full 360 degrees. Test results are included showing the commutation limitations of type E (BK 496) ignitrons when connected in an 'inverse-parallel' configuration. The di/dt limitations for oscillatory discharge currents in single ignitrons are also given.

Developments for the high voltage test of A80-19655 pulsed superconducting coils. A. Ulbricht, G. Nöther, and L. Siewerdt (Karlsruhe, Kernforschungszentrum, Karlsruhe, West Germany). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 1.

Oxford and New York, Pergamon Press, 1979, p. 609-614. 9 refs. EURATOM-supported research.

The paper presents some experimental results obtained with an inductive power pulse generator of 40 MW switching power at 47 kV. A special bushing and a complete protection system of the pulse generator were developed and tested. Attention is given to an investigation of the voltage rise during the switching process as well as of the energy balance, which are then compared with calculated values. Finally, a cost estimate based on the results of the experiment is given for the application of a superconducting switch in an ohmic heating circuit for tokamaks.

Neutronics in the toroidal belt-geometry of a A80-19657 screw pinch reactor. K. A. Verschuur (Netherlands Energy Research Foundation, Petten, Netherlands). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, Oxford and New York. 1978. Volume 2. Pergamon Press, 1979, p. 623-629. 8 refs.

The neutronics characteristics of the Belt Screw Pinch Reactor, which differ markedly from those for a tokamak reactor, are studied. Transport calculations have been performed in the toroidal belt geometry using albedos and accompanying absorption data for the blanket, which are calculated with one-dimensional Sn. For this purpose the ANISN code has been modified (ANISN-ALB), and the code FURNACE developed. The results for the BSPR show a marked poloidal variation of the neutron wall loading, the heating and the tritium production. The experiences with the codes ANISN-ALB and FURNACE are promising.

A80-19658 Blanket and power conversion system of NUWMAK. D.-K. Sze (Wisconsin, University, Madison, Wis.). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2. Oxford and New York, Pergamon Press, 1979, p. 631-637. 8 refs.

Research supported by the U.S. Department of Energy and Wisconsin Electric Research Foundation.

A blanket design based on titanium structure, boiling water cooling, and using a phase change material as energy storage and tritium breeder is presented. This design is aimed to solve many problems associated with a tokamak reactor. In particular, thermal fatigue, thermal energy storage, tritium leakage problems are much alleviated. A respectable thermal efficiency is obtainable. Such a blanket and power conversion system should be simple, safe and

Diffusion of tritium in neutron-irradiated A80-19660 microcrystalline Beta-Li5AlO4. D. Guggi, H. R. Ihle, and U. Kurz (EURATOM and Kernforschungsanlage Jülich GmbH, Institut für Chemie, Jülich, West Germany). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2. Oxford and New York, Pergamon Press, 1979, p. 645-650. 6 refs.

A80-19662 Experimental studies of neutron multiplication from beryllium /n. 2n/ reaction in CTR blankets, T. K. Basu, P. Cloth, D. Filges, and V. R. Nargundkar (EURATOM and Kernforschungsanlage Jülich GmbH, Institut für Reaktorentwicklung, Jülich, West Germany). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2. Oxford and New York, Pergamon Press, 1979, p.

657-660. 6 refs.

Some implications of a cellular structure in A80-19663 minimum thickness fusion reactor blankets. L. J. Baker (Atomic Energy Research Establishment, Harwell, Oxon, England). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2. Oxford and New York, Pergamon Press, 1979, p. 661-666. 7 refs.

Some results are presented of survey neutron and photon transport calculations aimed at minimizing the thickness of fusion reactor blankets. It is demonstrated that a 3 zone helium cooled model may be chosen to yield a blanket employing an 0.2 m thick breeding zone. The transport calculations are of an idealized representation in that they ignore the inevitable subdivision of the blanket into cells for practical manufacturing and maintenance reasons. Monte Carlo calculations are described in which the implications of this are investigated. Parameters explored include the tritium breeding rates and the local increases in neutron flux and radiation damage at the rear of the blanket due to inter-cell (Author) streaming.

A80-19664 Possible improvements to a basic cellular thin blanket fusion reactor configuration. G. Constantine (Atomic Energy Research Establishment, Harwell, Oxon, England). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2. Oxford and New York, Pergamon Press, 1979, p. 667-672. 7 refs.

In a companion paper the implications of subdividing a thin fusion reactor blanket into discrete cells have been explored with particular reference to neutron streaming through the intercell spaces and the accompanying reduction in tritium breeding. A possible solution to both these problems is to fill these spaces with canned graphite blocks. Monte Carlo calculations are presented which demonstrate the effect of these graphite 'infillers' on the neutron economy of the blanket. Estimates are made of the nuclear heating of the infillers and the peak temperatures attained if cooling takes place only by radiative heat transfer to the cells and first wall.

(Author)

A80-19665 Two-dimensional heating analysis of fusion blankets for synfuel production. O. W. Lazareth, J. S. K. Tsang, and J. R. Powell (Brookhaven National Laboratory, Upton, N.Y.). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2. Oxford and New York, Pergamon Press, 1979, p. 673-678. Research

sponsored by the U.S. Department of Energy.

Fusion reactors could be used to generate electric power and produce synthetic fuels with relatively high efficiencies (about 60%). A two temperature zone blanket coupled to a high temperature electrolysis system would be used. An important parameter in this system is the ratio of the fusion neutron kerma energy absorbed by the hot interior (the higher temperature zone) to the total energy/fusion. This parameter is calculated as approximately 0.5 for both a one and two-dimensional model of the blanket module, and is a reasonable value for efficient energy production. (Author)

A80-19668 A system for the control of tritium losses in primary and steam circuits of a fusion power plant. F. Lanza, P. Rocco, and F. van Rutten (EURATOM and Comitato Nazionale per l'Energia Nucleare, Centro Comune di Recerche, Ispra, Italy). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2. Oxford and New York, Pergamon Press, 1979, p. 691-695. 10 refs.

An analysis of the tritium pathway in the cooling system of a tokamak power reactor (FINTOR-D) shows the important role played by water impurities in the helium circuit. A dehydration system is described and the consequences on the tritium content in the cooling system are discussed.

(Author)

A80-19669 Investigations of isotope separation effects of a Ti-fluidized bed. H. Weichselgartner and J. Perchermeier (EURATOM and Max-Planck-Institut für Plasmaphysik, Garching, West Germany). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2.

Oxford and New York, Pergamon Press, 1979, p.

Experimental data on separation effects by hydrogen isotopes of a Ti-fluidized bed are presented. Desorption measurements of H2 and D2 on solid samples (foils, wires, bulk material and Ti solid bed getters) are discussed in terms of diffusion processes and compared with the fluidized bed results. The isotopic separation behavior of a fluidized bed in order to separate T2 from other hydrogen isotopes in fusion devices is evaluated. A proposal is made how a fluidized bed must be designed of meeting specific needs of fusion devices.

(Author)

A80-19670 Main power supplies for large toroidal fusion experiments. E. Bertolini. In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2. Oxford and New York, Pergamon Press, 1979, p. 705-728. 23 refs.

The paper examines main power supplies for large toroidal fusion experiments. The tokamak loads, the toroidal magnetic field coils, the poloidal magnetic field system coils, and the plasma positioning system are discussed; in addition, energy storage by rotating machinery and by a static system are considered. The main power supplies for tokamaks use conventional synchronous alternators; however, since the operational duty is not conventional it is suggested that the power supply design be reassessed by examining Local Energy Storage, Flywheel-Generator-Converter (FGC), and Transformer Controlled Convertor (TCC) equipment. In FGC units the generator is mechanically coupled to a motor driver and to a high inertia rotor to store the energy; the TCC units have been considered for the large tokamaks with powers exceeding 500 MW.

A80-19672 Behavior of SORB-AC wafer pumps in contaminated H2 plasmas and during maintenance of plasma machines.

B. Ferrario and L. Rosai (SAES Getters S.p.A., Milan, Italy). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2.

Oxford and New York, Pergamon Press, 1979, p. 737-744. 9 refs.

A80-19676 The design of a thin walled toroidal vacuum chamber for a large RFP experiment. K. E. Lavender, H. J. Crawley, J. E. Partridge, and S. Skellett (EURATOM and U. K. Atomic Energy Authority Fusion Association, Culham Laboratory, Abingdon, Oxon, England). In: Fusion technology 1978, Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2.

Oxford and New York, Pergamon Press. 1979. p.

771-775.

A80-19682 Spatial and depth distribution of deuterium, oxygen, and limiter materials on the liner of TFR 400. B. M. U. Scherzer, R. Behrisch, H. Schmidl (EURATOM and Max-Planck-Institut für Plasmaphysik, Garching, West Germany), and R. S. Blewer. In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2.

 $$\operatorname{\textsc{Oxford}}$$  and New York, Pergamon Press, 1979, p. 809-814. 7 refs.

The coverage of the liner of TFR 400 with B, C, O, Mo and W and the areal density of trapped deuterium have been measured on about 50 samples cut from the liner after shutdown. Spatial distributions around the outer periphery and around 4 small cross sections are reported. A very close correlation is found for the Mo-deposit and the trapped deuterium. Depth profiles measured by proton elastic scattering (PES) and D(He-3, He-4)H nuclear reaction show the same correlation. This behavior indicates that trapped deuterium is covered by fresh limiter material so that the greater part of trapped gas does not participate in the recycling process. (Author)

A80-19708 Status of the JET project. P. H. Rebut (EURATOM and Commissariat à l'Energie Atomique, Abingdon, Oxon., England). (International Atomic Energy Agency, Technical Committee Meeting on Large Tokamak Experiments, Paris, France, Sept. 1-6, 1978.) In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2. Oxford and New York, Pergamon Press, 1979. p.

1035-1048.

With regard to the JET project, the physics of the plasma is discussed in terms of a high beta (of 5-10 percent) plasma in equilibrium, reducing the plasma impurity level, and RF heating, particularly by magnetic pumping, and ion cyclotron and hybrid ion-ion resonance heating methods. Machine systems considered are first: a double wall inconel vacuum vessel utilizing a metal bakeable gate valve which is the vacuum vessel/neutral injector interface; and second, magnetic systems including toroidal field coils and the poloidal field system. Two identical flywheel generator convertor systems consitute the power supply system, each made up of a vertical shaft generator, motor drive, static excitation unit and diode convertor unit, and each capable of delivering 2.6 GJ/pulse (30 s every 10 minutes), and peak power of 400 MW. In addition, a temperature-controlled recirculatory ventilation system is employed. The torus hall is maintained at an underpressure 7 mbar below atmospheric, while the intermediate hall is maintained at 5 mbar below atmospheric

A80-19709

JT-60 project. M. Yoshikawa (Japan Atomic Energy Research Institute, Tokai, Ibaraki, Japan). In: Fusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volume 2.

Oxford and New York, Pergamon Press, 1979, p. 1079-1083.

The status and design of the Japanese JT-60 tokamak are reported. Scaling studies on JT-60, a large tokamak for the production of reactor-grade plasmas and the investigation of their physical and technical aspects relative to fusion reactor development, were begun in about 1970, with formal initiation of the JT-60 Program in 1973. After the conceptual design, preliminary design, engineering development and preconstruction design phases, the construction of the device was started in April, 1978 and is expected to be completed in 1983. The tokamak is designed for non-DT studies at temperatures up to 10 keV and confinement times up to 1 sec with a long discharge duration. The device features a removable

magnetic limiter for the control of current distribution and impurity content, a molybdenum liner, copper-based toroidal field coils with poloidal field coils inside them, and plasma heating by neutral beam injection at 75-keV and 20 MW and lower hybrid resonance heating at 10 MW; diagnostics are made along horizontal and vertical view lines and at an angle of 40 deg with the median plane.

A.L.W.

A80-19716 # Studies on carbon dioxide cycles for power generation. I - Fundamental condensation cycles. K. Akagawa, T. Fujii, T. Sakaguchi (Kobe University, Kobe, Japan), and M. Aota (Kinki Industry Co., Japan). *JSME*, Bulletin, vol. 22, Nov. 1979, p. 1595-1603. 12 refs.

Further improvements in thermal efficiency of steam and nuclear power plants are an important problem in the present energy crisis. This report presents the performance characteristics of two fundamental condensation cycles employing carbon dioxide as a working medium. The effects of cycle parameters on thermal efficiency in non-reheat and reheat condensation cycles and values of optimum reheat pressures are discussed. Furthermore, losses in each component in different CO2 cycles by utilizing the energy concept based on the second law of thermodynamics were analyzed and the effects of regenerating on irreversible losses were discussed. As the result, it was shown that at turbine inlet pressure of about 250 ata and turbine inlet temperatures higher than 650 C CO2 condensation cycles in double- or triple-reheating give a better performance than conventional steam power-plant cycles. (Author)

A80-19740 Improved planar solar convertor based on uranyl neodymium and holmium glasses. R. Reisfeld and Y. Kalisky (Jerusalem, Hebrew University, Jerusalem, Israel). *Nature*, vol. 283, Jan. 17, 1980, p. 281, 282. 7 refs.

The energy transfer between uranyl ions (UO2(+2)) and neodymium and holmium ions at concentrations suitable for use as glass dopants is calculated in order to evaluate the possibility of using uranyl-neodymium and uranyl-holmium codoped glasses in solar energy collectors. It is shown that, due to energy transfer from UO2(+2) to Nd(+3), the integrated fluorescence intensity of the 1.06-micron transition of Nd(+3) excited in the spectral range 360 to 500 nm is increased by a factor of 8.5, which corresponds to an increase of 150% over that of neodymium-only-doped glass excited in the range 360 to 800 nm. For excitation into the maximum absorption peak of UO2(+2) near 420 nm, emission spectra of ND(+3) and Ho(+3) glasses codoped with UO2(+2) indicate that collector efficiency can be improved by the utilization of energy transfer from uranyl ions, which absorb strongly in the solar spectrum, to No(+3), which emits in bands matching the maximum sensitivity of solar cells, however the application of Ho(+3)-codoped glasses may not be practical due to low branching ratios in holmium transitions.

A80-19844 Solar cells in practice (Solarzellen in der Praxis). H. Rechberger (ATEC Electronic GmbH, Munich, West Germany). *Elektronik*, vol. 29, Jan. 10, 1980, p. 72-78. 10 refs. In German.

The paper presents an overview of solar energy, its various types and its uses as an alternate energy source. Attention is given to the characteristic curves of solar cells that are determined by temperature, series resistance, and shunt resistance. The development, construction types, assembly, circuitry and dimensioning of solar cells are discussed in detail. The use of solar generators as an application where no power-supply voltage exists is also discussed.

C.F.W.

A80-19847 # Relativistic high-current microwave plasma electronics (Reliativistskaia sil'notochnaia SVCh plazmennaia elektronika). L. S. Bogdankevich, M. S. Rabinovich, and A. A. Rukhadze (Akademia Nauk SSSR, Fizicheskii Institut, Moscow, USSR). Fizika, vol. 22, no. 10, 1979, p. 47-58. 21 refs. In Russian.

This review examines advances in the field of relativistic microwave plasma electronics associated with the utilization of high-current electron beams. Attention is given to classical (non-quantum) electronics and to the exploitation of the following

radiation mechanisms: (1) transition radiation, (2) bremsstrahlung, (3) cyclotron radiation, (4) Cerenkov radiation, and (5) the Compton effect. The utilization of such effects in TWTs, BWTs, and magnetrons is discussed.

A80-19955 Cavity enhancement by controlled directional scattering. R. Winston (Chicago, University, Chicago, III.). Applied Optics, vol. 19, Jan. 15, 1980, p. 195-197. 10 refs.

A method for designing cavity enclosures is presented that can be applied to the design of a nonimaging concentrator. The method maintains high transmission at the expense of some concentration in the presence of a gap between the reflector and the receiver. The slight loss of concentration may be partly offset by enhanced absorption of radiation by the receiver, resulting from the cavity effect.

C.F.W.

A80-19976 New concept for a system suitable for solar simulation. I. Powell (National Research Council, Ottawa, Canada). Applied Optics, vol. 19, Jan. 15, 1980, p. 329-334. 8 refs.

A theoretical study of a new approach for a solar simulator design capable of testing solar collectors is described. The technique involved in this design requires that the source have rotational symmetry and employs a 2-D approach in the calculation of the irradiance in the image plane. Reflecting surfaces to be used with two different types of light source are computed to illustrate practical applications of this method. (Author)

A80-19989 # Open cycle air turbine solar thermal power system (Générateur solaire a turbine a air fonctionnant en cycle ouvert). E. Le Grivès (ONERA, Châtillon-sous-Bagneux, Hauts-de-Seine, France). La Recherche Aérospatiale, Nov.-Dec. 1979, p. 355-373. 9 refs. In French.

Solar electrical power generation using a heated air turbine in conjunction with a tower-mounted central receiver and heliostat field can be hybrid fossil fuel fired so as to avoid thermal storage problems. Using a regenerative gas turbine open cycle, no cooling system is required. It is shown that with a solar receiver concept allowing a fast thermal response to transient radiation situations, a turbine inlet temperature of 1100 to 1150 K can be reached with an overall efficiency (power available on turbine shaft/power radiated into receiver) of 25 percent, with a 2000 sun concentration ratio. Solar receiver, turbocompressor and regenerator sizes are given for a thermal power input of 1 MW into the receiver. (Author)

A80-20058 # Digital computer modeling of steady-state conditions of the magnetoplasmadynamic generator current layer (Modelirovanie na TSVM ustanovivshegosia rezhima tokovogo sloia magnitoplazmodinamicheskogo generatora). N. V. Markovskii and G. L. Baranov (Akademiia Nauk Ukrainskoi SSR, Institut Elektrodinamiki, Kiev, Ukrainian SSR). Problemy Tekhnicheskoi Elektrodinamiki, no. 69, 1979, p. 34-40. 14 refs. In Russian.

The paper examines a physical model of the high-temperature current layer which interacts with magnetoplasmadynamic generator duct walls. A mathematical model using nonlinear differential equations which depict this process is utilized, and the results of digital computer computations conforming to a block-diagram of this model for various operating conditions are presented.

A.T.

A80-20066 # Investigation of the effect of piston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core (Issledovanie vliianiia induktivnosti porshnia na energeticheskie kharakteristiki porshnevogo lineinogo generatora s ferromagnitnym serdechnikom). S. S. Pignastii (Akademiia Nauk Ukrainskoi SSR, Institut Elektrodinamiki, Kiev, Ukrainian SSR). Problemy Tekhnicheskoi Elektrodinamiki, no. 69, 1979, p. 109-114. 5 refs. In Russian.

A80-20069 # Change in rate of conducting-piston motion and the characteristics of field-diffusion processes in a linear electromechanical energy converter (Izmenenie skorosti dvizheniia provodiashchego porshnia i osobennosti protsessov diffuzii polia v

lineinom elektromekhanicheskom preobrazovatele energii). V. T. Chemeris and S. A. Gavrilko (Akademiia Nauk Ukrainskoi SSR, Institut Elektrodinamiki, Kiev, Ukrainian SSR). *Problemy Tekhnicheskoi Elektrodinamiki*, no. 70, 1979, p. 94-99. In Russian.

A80-20128 \* Space applications of superconductivity - High field magnets. F. R. Fickett (National Bureau of Standards, Thermophysical Properties Div., Boulder, Colo.). *Cryogenics*, vol. 19, Dec. 1979, p. 691-701. 20 refs. NASA Order A-437018.

The paper discusses developments in superconducting magnets and their applications in space technology. Superconducting magnets are characterized by high fields (to 15T and higher) and high current densities combined with low mass and small size. The superconducting materials and coil design are being improved and new high-strength composites are being used for magnet structural components. Such problems as maintaining low cooling temperatures (near 4 K) for long periods of time and degradation of existing high-field superconductors at low strain levels can be remedied by research and engineering. Some of the proposed space applications of superconducting magnets include: cosmic ray analysis with magnetic spectrometers, energy storage and conversion, energy generation by magnetohydrodynamic and thermonuclear fusion techniques, and propulsion. Several operational superconducting magnet systems are detailed.

V.L.

A80-20141 Use of nuclear techniques in the characterization of chrome black solar absorber surfaces. Z. E. Switkowski (Kodak /Australasia/ Pty., Ltd., Coburg, Victoria, Australia), J. C. P. Heggie (Melbourne, University, Melbourne; St. Vincent's Hospital, Fitzroy, Victoria, Australia), G. J. Clark (Commonwealth Scientific and Industrial Research Organization, Div. of Mineral Physics, North Ryde, New South Wales, Australia), and R. J. Petty (Alfred Hospital, Prahran, Victoria, Australia). Australian Journal of Physics, vol. 32, Sept. 1979, p. 343-360. 36 refs.

A set of electrodeposited chrome black solar absorbers has been subjected to ion beam analysis in an attempt to determine the concentration depth profiles of the major elemental constituents. Chromium distributions were obtained using the Cr-52(p, gamma) Mn-53 nuclear reaction, which is resonant at Ep = 1005.2 keV. The possibility was investigated of inferring oxygen distributions from the gamma-ray lineshapes (measured with a Ge(Li) detector) of the direct capture reaction O-16(p, gamma)F-17. Concentration profiles were also obtained for fluorine and sodium contaminants in some chrome blacks. Complete experimental details are given of the various nuclear techniques used. The results of these measurements are discussed in terms of the microscopic physical features of the selective surfaces and are related to the known photothermal properties of the surfaces. (Author)

A80-20157 Steady-state currents driven by collisionally damped lower-hybrid waves. R. McWilliams, \* E. J. Valeo, R. W. Motley, W. M. Hooke, and L. Olson (Princeton University, Princeton, N.J.). *Physical Review Letters*, vol. 44, Jan. 28, 1980, p. 245-248. 24 refs. Contract No. EY-76-C-02-3073.

Experiments demonstrating the transfer of momentum from lower-hybrid (electron plasma) waves to electron currents, which offer a plausible alternative to pulsed Ohmic heating currents in tokamaks, by means of collisional absorption are reported. Lowerhybrid waves were excited by bursts of 60 to 70-MHz fields applied to phased loops mounted on the outside of a fused quartz tube surrounding a linear helium, neon or argon afterglow plasma, and the current was studied as a function of input power. It is found that lower-hybrid waves can generate current densities on the order of a saturation density which is on the order of the toroidal currents required in tokamaks. The electron current obtained is observed to be roughly half that predicted by an approximate solution of an electron kinetic equation with a Lorentz collision operator, and possible reasons for this discrepancy are discussed. The wavelength dependence of the current predicted by the theory is, however, verified. A.L.W.

A80-20158 Effect of finite beta on drift-wave turbulence and particle confinement. A. Hasegawa (Bell Telephone Laboratories, Inc., Murray Hill, N.J.), H. Okuda (Princeton University, Princeton, N.J.), and M. Wakatani (Kyoto University, Kyoto, Japan). *Physical Review Letters*, vol. 44, Jan. 28, 1980, p. 248-251. 11 refs. Research supported by the Yamada Foundation; Contract No. EY-76-C-02-3073.

Consideration is given to the effect of plasma beta on electric potential and diffusion in a toroidal plasma with magnetic shear. Mode-coupling equations are derived for a finite-beta plasma with magnetic shear which describe the coupling in finite-beta drift Alfven wave turbulence. It is shown that when beta is greater than the square of the inverse aspect ratio, cross-magnetic-field diffusion is enhanced by the appearance of convective cells, while if beta is much less that the square of the inverse aspect ratio, the electric potential obeys the Hasegawa-Mima mode-coupling equation for electrostatic drift waves, reducing plasma diffusion. Results of numerical experiments are presented which confirm the theoretical results. A.L.W.

A80-20159 Study of current-driven magnetohydrody-namic instability in the Heliotron-D device. O. Motojima, A. Iiyoshi, and K. Uo (Kyoto University, Uji, Japan). *Physical Review Letters*, vol. 44, Jan. 28, 1980, p. 251-255. 15 refs.

The magnetohydrodynamic stability of the Ohmically heated plasma in the Heliotron-D device, which has a large external rotational transform and strong shear, is investigated. Magnetohydrodynamic activity was analyzed in a helium plasma in the Pfirsh-Shlüter regime as the Ohmic current was varied from 0.5 to 2 in a direction chosen to increase the rotational transform by an array of magnetic probes outside the plasma. Instabilities are found to occur in the regions where the sum of the Ohmic current and the external rotational transform is an integer, however, the Ohmic current can exceed the unstable regimes, resulting in stable discharges for an Ohmic current greater than unity. It is found that there is no Ohmic current flow outside the plasma, and the stabilizing effect of the magnetic shear on the predicted MHD instabilities is demonstrated.

A.L.W.

A80-20165 A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering. R. Behn (Stuttgart, Universität, Stuttgart, West Germany). *Physics Letters*, vol. 74A, Nov. 26, 1979, p. 316-318. 10 refs.

A repetitively Q-switched ruby laser employing a prototype system that uses six linear flashlamps, set up in a close-coupled configuration to pump a 5/8 in. by 6.5 in. ruby rod, is examined. The laser is capable of recording the temporal evolution of electron density and temperature of a tokamak-type plasma by Thomson scattering. Due to the repetition rates and the fact that inversion stays well below the level of single pulse operation, it is determined that the requirements concerning the contrast ratio of the optical switch can be reduced. It is shown that with a high density arc plasma a temporal resolution of 40 microsec has been achieved.

C.F.W.

A80-20242 Residential heat loss mapping of Farmington, New Mexico using airborne thermal scanning. T. K. Budge and M. H. Inglis (New Mexico, University, Albuquerque, N. Mex.). In: American Society of Photogrammetry, Fall Technical Meeting, Albuquerque, N. Mex., October 15-20, 1978, Proceedings.

Falls Church, Va., American Society of Photogrammetry, 1978, p. 82-91. Research supported by the New Mexico Energy and Minerals Department and New Mexico Energy Institute.

A80-20274 Nonequilibrium thermodynamics of fuel cells - Heat release mechanisms and voltage. G. Wilemski (Physical Sciences, Inc., Woburn, Mass.). *Journal of Chemical Physics*, vol. 72, Jan. 1, 1980, p. 369-377. 10 refs. Research supported by the U.S. Department of Energy.

Nonequilibrium thermodynamics is used to analyze the spatial distribution of heat release mechanisms occurring in fuel cells operating under load in nonisothermal steady states. Novel contribu-

tions to heat release in the bulk electrolyte are found which are analogous to Peltier and Thomson effects in metallic conductors. Expressions for the heat release at individual electrodes are presented. An equation for the voltage of these cells is also derived.

Author

A80-20378 Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens. D. S. Sklarew (Arizona, University, Tucson, Ariz.). Geochimica et Cosmochimica Acta, vol. 43, Dec. 1979, p. 1949-1958. 40 refs. Grant No. NGR-03-002-171.

A80-20424 OTEC - Solar energy from the sea. R. H. Douglass, Jr. (TRW Defense and Space Systems Group, Systems Engineering and Integration Div., Redondo Beach, Calif.). *Quest*, vol. 3, Autumn 1979, p. 3-29.

The principles and history of ocean thermal energy conversion (OTEC) are discussed, along with U.S. and foreign OTEC programs, where all proposed OTEC plants use the Rankine cycle. Particular attention is given to OTEC components such as the mechanically durable 0.030 inch thick tube walls of the heat exchanger. The working fluid of modern closed cycle systems is ammonia, and mechanical cleaning and chlorination are used against biofouling. Heat exchanger types, including shell-and-tube, plate-fin, and trombone are considered, as well as the hull of the plant, its platform, sea water pumps, and differently designed cold water pipes. Moreover, computer models designed to study performance sensitivity to various operating parameters are discussed.

J.P.B.

A80-20453 The challenge of efficiently retorting very nonuniform beds of oil shale rubble. T. R. Galloway (California, University, Livermore, Calif.). *In Situ*, vol. 3, no. 4, 1979, p. 279-330. 55 refs. Contract No. W-7405-eng-48.

The paper reviews current analyses of the problem, together with experimental evidence for the key fluid-mechanical, heat-transfer, and mass-transfer processes that cause these lower yields. It is found that loss in retort oil yield is dominated by the flow patterns in the matrix material around the large blocks and by the thermal transient characteristics within the blocks. The principal mechanism appears to be burning and cracking of the produced oil in the gas phase near the larger shale blocks. The use of process-control methods involving air/steam ratio, total flow, and flow variations coupled with monitored exit-gas composition appears feasible to maximize oil production. (Author)

A80-20454 Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere. E. Pedram, M. A. Hasanain, A. L. Hines (Colorado School of Mines, Golden, Colo.), and J. J. Duvall (U.S. Department of Energy, Laramie Energy Technology Center, Laramie, Wyo.). In Situ, vol. 3, no. 4, 1979, p. 331-352. 14 refs. Contract No. DE-AC20-79LC10020.

The recovery of oil from shale by in situ retorting eliminates mining a portion of the shale and the pollution problems related to the disposal of large quantities of spent shale. Spent shale beds offer a possible means of disposing of retort water and undesirable combustion gases. This study investigates the adsorption of hydrogen sulfide on oil shale retorted in nitrogen at temperatures from 250 to 950 C and the changes in the properties of shale during retorting. Chemical and X-ray diffraction analyses results indicate a strong influence of retorting on the properties of spent shale. Adsorption studies resulted in equilibrium isotherms modeled by the Langmuir, Freundlich, and Polanyi equations and the data for all temperatures showed good consistency. It is shown that while the use of spent shale beds as a means of disposing of undesirable retort gases appears feasible, a prediction as to the effectiveness of the retort zone as a V.L. disposal site would be premature.

A80-20455 Mineral changes during oil shale retorting. W. C. Park, A. E. Lindemanis, and G. A. Raab (Occidental Research Corp., Irvine, Calif.). *In Situ*, vol. 3, no. 4, 1979, p. 353-381. 34 refs.

Most shale oil processes operate well above 400 C and the elevated temperatures also cause various inorganic reactions. The paper investigates the solid-state mineral reactions which occur under conditions encountered during in situ retorting. These reactions are important in modeling the retorting process and in selecting operating parameters to minimize the environmental impact of spent shale on ground water. To characterize the mineral assemblages and compositions in the retorted spent shale several methods are used, such as X-ray powder diffraction, optical microscopy of polishedthin sections, and electron microprobe analysis. Some of the conclusions made as a result of the study are: 1) for extended retorting at over 700 C all carbonates are converted to silicates; 2) the decomposition of the carbonate minerals to the free oxides is highly endothermic but enthalpy is reduced during silication; and 3) ground water leachability can be minimized by the formation of the silicate minerals at the high temperatures and long times utilized for in situ retorting.

A80-20456 # OTEC - A comprehensive energy analysis. T. C. G. Carlson (Massachusetts, University, Amherst, Mass.). *Mechanical Engineering*, vol. 102, Jan. 1980, p. 32-39. 18 refs.

A comprehensive energy analysis is presented for a proposed Gulf-Stream-based Ocean Thermal Energy Conversion (OTEC) system designed to supply upon demand 148 billion kWh to New England by 1990. Basically, the system consists of one hundred and six 400-MW power plants, with factors of 0.93, generating hydrogen on-board which is transported by underwater pipe to deep-water storage or to terminals onshore for reconversion to electricity. The results of a net energy-input-output analysis show that the OTEC system compares favorably with other energy conversion systems: e.g. for the same net electric energy output it uses from 36 to 53 percent less fossil fuel than the two nuclear power plant systems used for comparison. A dynamic energy analysis indicates energy payoff times from 4.7 to 6.2 years and on-line times of 17 to 35 years. V.L.

A80-20495 # Possibility of conversion of solar corpuscular radiation energy into electrical energy (O vozmozhnosti preobrazovaniia energii korpuskuliarnogo izlucheniia solntsa v elektricheskuiu). S. Ibadov (Akademiia Nauk Tadzhikskoi SSR, Institut Astrofiziki, Dyushambe, Tadzhik SSR). Akademiia Nauk Tadzhikskoi SSR, Doklady, vol. 22, no. 7, 1979, p. 408-412. 12 refs. In Russian.

The paper considers the use of an electrical capacitor type device for the spaceborne conversion of corpuscular radiation energy from solar flares into electrical energy. Some calculations are presented for the case of such a device being located in interplanetary space or at the surface of a planet with a weak magnetosphere.

B.J.

B.J.

A80-20499 The controlling production mechanism of methane gas from coalbeds. T. M. Doscher (Southern California, University, Los Angeles, Calif.), V. A. Kuuskraa, and E. Hammershaib (Lewin and Associates, Washington, D.C.). *Energy Sources*, vol. 5, no. 1, 1980, p. 71-84.

Characteristics of the production of methane from coal and physical mechanisms controlling the production are investigated. It is shown that the recovery of methane is determined by the interaction of two controlling factors: diffusion of methane from coal into the fracture system and permeability within the fracture system, with ultimate recovery depending upon the concentration of methane and the effective drainage volume of the wellbore. At low diffusion constants recovery is limited by diffusion and increasing production requires connecting large additional surface areas to the wellbore. At higher diffusion constants recovery is permeability-limited and can be improved by increasing the wellbore radius or the permeability.

V.L

A80-20538

New approach for Vlasov equilibrium of a relativistic electron beam in a plasma medium. T. Saito (Soka University, Tokyo, Japan), T. Shimojo, and S. Goto (Tokyo Gakugei University, Tokyo, Japan). Nuovo Cimento B, Serie 11, vol. 53 B, Oct. 11, 1979, p. 301-310. 11 refs. Research supported by the Ministry of Education, Science and Culture of Japan.

The structure of an equilibrium, axially symmetric electron bean propagating in a plasma medium is studied in the framework of the relativistic Vlasov equations and the Maxwell equations. Instead of the usually adopted assumption that the neutralization fraction is independent of radial position, the more physical requirement that the energy of the electromagnetic fields produced by the particles takes its minimum value is proposed. The condition for the electron beam and plasma medium to be in equilibrium is expressed by a well-defined relation among the temperatures, the mean velocities and the neutralization fraction, and the Bennett distribution is obtained. (Author)

A80-20641 \* Weight optimization of ultra large space structures. R. P. Reinert (Boeing Aerospace Co., Seattle, Wash.). Society of Allied Weight Engineers, Annual Conference, 38th, New York, N.Y., May 7-9, 1979; Paper 1301. 22 p. 5 refs. Contracts No. NAS9-15196; No. NAS9-15636.

The paper describes the optimization of a solar power satellite structure for minimum mass and system cost. The solar power satellite is an ultra large low frequency and lightly damped space structure; derivation of its structural design requirements required accommodation of gravity gradient torques which impose primary loads, life up to 100 years in the rigorous geosynchronous orbit radiation environment, and prevention of continuous wave motion in a solar array blanket suspended from a huge, lightly damped structure subject to periodic excitations. The satellite structural design required a parametric study of structural configurations and consideration of the fabrication and assembly techniques, which resulted in a final structure which met all requirements at a structural mass fraction of 10%.

A80-20643 The satellite power system concept and program. G. M. Hanley (Rockwell International Corp., El Segundo, Calif.). Society of Allied Weight Engineers, Annual Conference, 38th, New York, N.Y., May 7-9, 1979, Paper 1305. 14 p.

The paper summarizes the approaches that have been considered for the satellite power system (SPS) and the current reference concept defined by NASA and the Department of Energy (DOE). The overall system's characteristics are described. The NASA-DOE reference SPS system consists of two different satellite approaches, both of which utilize solar photovoltaic energy conversion and have 5-GW power outputs on the ground. One approach uses a silicon solar cell array without reflecting concentrators, while the other employs gallium arsenide solar cells in an array with flat concentrators. The approach to satellite construction and transportation system characteristics are also described.

V.T.

A80-20686 # Utilization of ocean heat for hydrogen production (Vikoristannia tepla okeanu dlia oderzhannia vodniu), B. O. Troshen'kin. Akademiia Nauk Ukrains'koi RSR, Visnik, vol. 43, Oct. 1979, p. 22-30. 16 refs. In Ukrainian.

Methods of obtaining electrical energy from the temperature difference of ocean layers are reviewed, along with recent progress in the field of electrolytic hydrogen generators. The selection of chemical energy carriers for ocean thermal energy delivery systems is discussed.

A80-20714 Coatings for enhanced photothermal energy collection. II - Non-selective and energy control films. C. M. Lampert (California, University, Berkeley, Calif.). Solar Energy Materials, vol. 2, Sept.-Nov. 1979, p. 1-17. 23 refs. Research supported by the U.S. Department of Energy.

Several types of coatings and surface preparations, other than selective absorbers, can be utilized for economical collection and control of solar energy. These films can be used for both solar thermal collectors and for window systems in buildings. Numerous nonselective, hot and cold mirror, and antireflective coatings are reviewed and tabulated. Detailed reflectance, emittance and thermal stability data are presented for these various coatings. Both moderately selective and nonselective absorbers consist of black paint, chemical conversion finishes, electroplated and anodized coatings.

Both hot and cold mirror coatings are selective transmitters of energy. They are considered for applications where light and heat need to be separated and trapped. Antireflective films are evaluated for use on glass surfaces. The findings of this study reveal many different types of inexpensive and promising coatings for efficient utilization of solar energy. (Author)

A80-20715 The effect of fluorescent wavelength shifting on solar cell spectral response. H. J. Hovel, R. T. Hodgson, and J. M. Woodall (IBM Thomas J. Watson Research Center, Yorktown Heights, N.Y.). Solar Energy Materials, vol. 2, Sept.-Nov. 1979, p. 19-29. 7 refs.

Fluorescent wavelength shifting has been used to enhance the spectral response and AMO conversion efficiency of several types of solar cells. Plastic fluorescent materials are useful for devices with a sharp cut-off in response, while ruby is suitable for devices with more gradual cut-offs. Efficiency improvements of 0.5 to 2 percentage points were measured on some cells, and greater improvements can be expected for optimized optical components. The optical efficiencies exceeded 50% for the plastic sheets and 75% for ruby. (Author)

A80-20716 Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schottky barrier solar cells. Y. D. Shen and G. L. Pearson (Stanford University, Stanford, Calif.). Solar Energy Materials, vol. 2, Sept.-Nov. 1979, p. 31-43. 9 refs. NSF Grant No. DMR-84373.

The paper derives a model for Au-/n/AlxGa1-xAs-/n/GaAs Schottky barrier solar cells. Theoretical analyses indicate that a cell of this type can be designed to have a short circuit current density of the same magnitude as that of an ordinary Au-GaAs Schottky barrier solar cell, while the open circuit voltage is greater and increases with Al composition x. Analysis shows that a Au-/n/Al0.3Ga0.7As-/n/GaAs Schottky barrier solar cell with an appropriate antireflection coating can be designed to have an open circuit voltage of 0.76, a short circuit current density of 30 mA/sq cm, a fill factor of 0.87 and a conversion efficiency of 19.5% when irradiated with an input power density of 100mW/sq cm. In addition, it is shown that, in order to have good collection efficiency of the photogenerated electron-hole pairs in the GaAs layer, the AlGaAs layer thickness d must be less than 1000 A. This result was confirmed by spectral response measurements. M.E.P.

A80-20717 Measurements of minority-carrier diffusion length in heterojunction solar cells. L. Tarricone (CNR, Gruppo Nazionale di Struttura della Materia, Parma, Italy) and E. Gombia (CNR, Parma, Italy). Solar Energy Materials, vol. 2, Sept.-Nov. 1979, p. 45-52. 11 refs.

The minority carrier diffusion length in the base material of Zn(x)Cd(1-x)S/GaAs solar cells have been investigated by measuring the open-circuit voltage as a function of the wavelength of the incident light. An extension of the surface photovoltage method to heterojunctions has been tried, determining the condition by which the open-circuit voltage or the short-circuit current is a linear function of the reciprocal absorption coefficient for each wavelength. The diffusion length values, obtained by extrapolation to zero light intensity of this linear function, are reported for several heterojunctions and compared to the growth processes and to the photovoltaic performances. (Author)

A80-20719 Cobalt oxide as a spectrally selective material for use in solar collectors. W. Kruidhof and M. van der Leij (Delft, Technische Hogeschool, Delft, Netherlands). Solar Energy Materials, vol. 2, Sept.-Nov. 1979, p. 69-79. 10 refs.

Cobalt oxide on bright nickel-electroplated steel was investigated for its use as a spectrally selective material in solar collectors. Cobalt was formed electrochemically in a high efficiency cobalt sulphate bath and oxidized in air at 400 C. The bath pH-value had the greatest influence on the optical properties of the oxide with best results obtained at a pH of 2.3. Three types of cobalt oxide on bright nickel-plated steel, produced under optimal process conditions are

presented. The high absorptance found at pH = 2.3 is mainly due to the structure of the upper part of the surface, which is needle-like without and rod-like with an iron(3) sulphate addition. Heating tests at different temperatures in air and in vacuum showed that of the two coatings with a high solar absorptance, the one made with an iron(3) addition to the bath seemed to be stable up to 300 C.

(Author)

A80-20720 The spectral selectivity of conducting micromeshes. D. Pramanik, A. J. Sievers, and R. H. Silsbee (Cornell University, Ithaca, N.Y.). Solar Energy Materials, vol. 2, Sept.-Nov. 1979, p. 81-91. 24 refs. NSF-supported research; Contract No. EG-77-S-03-1456.

The intrinsic absorption produced by the texture and finite conductivity of thin micromeshes is shown to severely limit their potential as a new class of heat mirrors. For semiconducting meshes it is shown that a 90% transmissivity in the solar spectral region is not compatible with a 90% reflectivity in the thermal re-radiation region; for metallic meshes only Al and Mg with submicron wire diameters show a potential improvement in selectivity over that obtained with thin metallic films. (Author)

A80-20722 Stabilized CVD amorphous silicon for high temperature photothermal solar energy conversion. D. C. Booth, D. D. Allred, and B. O. Seraphin (Arizona, University, Tucson, Ariz.). Solar Energy Materials, vol. 2, Sept.-Nov. 1979, p. 107-124. 33 refs. Contract No. ER-78-S-02-4899.

By pyrolytic decomposition of silane in the presence of dopant gases, a set of amorphous silicon films was prepared that contains various concentrations of carbon, nitrogen, boron or germanium. The effect of these dopants on the crystallization process and the optical properties is investigated. Films containing about 18 at.% carbon show the properties most favorable for solar absorbers. The crystallization is retarded to temperatures near 1000 C, and the solar absorptance is greater than that of non-intentionally doped CVD amorphous silicon. From the experimentally determined activation energy of crystallization, the structural lifetime for such absorber films is extrapolated to be in excess of several decades for continuous operation at 700 C. For identical thicknesses of absorber layers, spectrally selective stacks of stabilized amorphous silicon deposited on top of a molybdenum reflector have higher solar absorptance than stacks composed of polycrystalline silicon on a silver reflector, amorphous silicon on molybdenum having been tested at temperatures in excess of 500 C. (Author)

A80-20723 Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells. J. Gobrecht and H. Gerischer (Max-Planck-Gesellschaft zur Förderung der Wissenschaften, Fritz-Haber-Institut, Berlin, West Germany). Solar Energy Materials, vol. 2, Sept.-Nov. 1979, p. 131-142, 24 refs.

The height of the Schottky barrier at a CdS electrode in contact with various redox electrolytes has been measured at electronic equilibrium and the open-circuit photovoltage was linearly related to this quantity at constant illumination intensity. The photocurrent-voltage curves of such redox electrolyte junctions with CdS, n-GaAs and n-MoSe2 electrodes have been studied as a function of the light intensity which was varied over three orders of magnitude. The photocurrent of such electrochemical solar cells is at the open-circuit voltage compensated by the forward current through the junction, and its magnitude in comparison to the saturation current provides information on whether the recombination or the forward current controls the open circuit voltage of solar cells is discussed. (Author)

A80-20727 Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction. A. Sinha and S. K. Chattopadhyaya (Kurukshetra University, Kurukshetra, India). Solid-State Electronics, vol. 22, Oct. 1979, p. 849-852. 15 refs. Research supported by the Department of Atomic Energy of India.

Temperature dependence of the open-circuit photovoltage of a back surface field, diffused silicon junction has been studied analytically, including the effect of bandgap narrowing in the heavily doped back surface region. Open circuit voltage of a BSF structure has been found to be slightly less dependent on temperature as compared with that of a conventional cell. Further, the behavior of a BSF cell is found to be relatively insensitive to base layer resistivity. These results support the experimental data published by some investigators on temperature dependence of solar cells. (Author)

A80-20734 Analysis and evaluation of isotype heterojunction solar cells. H. J. Pauwels (Gent, Rijksuniversiteit, Ghent, Belgium). Solid-State Electronics, vol. 22, Nov. 1979, p. 988-990. 10 refs.

The I-V characteristics and maximum efficiency condition for isotype (n-n) heterojunction solar cells using n(+)-type semiconducting oxides as windows are analyzed. The band diagram of the n(+)-n heterojunction under forward bias is presented, and particle current densities are calculated from thermionic emission theory, diffusion theory and Shockley-Read recombination theory to obtain an expression for the j-V characteristics. Band bending is found to occur exclusively in the n-type semiconductor, with the dark saturation current at a minimum when the band bending is maximum. Band bending in both semiconductors is expected at conduction band discontinuities less than zero, and at zero the n-type semiconductor becomes inverted at the interface. An analysis of electron affinities of various semiconducting solar cell components indicates that while several n(+)-p anisotype structures fulfil the maximum efficiency conditions, only SnO2-Sn is an acceptable isotype solar cell structure. A.L.W.

A80-20862 Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, University of Pittsburgh, Pittsburgh, Pa., April 25-27, 1979. Part 2 - Systems and control. Conference sponsored by the University of Pittsburgh. Edited by W. G. Vogt and M. H. Mickle. Pittsburgh, Pa., Instrument Society of America, 1979. 515 p. Price of five parts, \$125.

Papers are presented on such topics as models in air transportation, time series applications in modeling and simulation, reduced order modeling, machine system selection and failure, missile modeling, fire control, and large-scale systems. Attention is also given to traffic operations and control, system identification, advanced estimation methods, and probabilistic reliability.

B.J.

A80-20881 Modeling and simulation. Volume 10. - Proceedings of the Tenth Annual Pittsburgh Conference, University of Pittsburgh, Pittsburgh, Pa., April 25-27, 1979. Part 3 - Energy and environment. Conference sponsored by the University of Pittsburgh. Edited by W. G. Vogt and M. H. Mickle. Pittsburgh, Pa., Instrument Society of America, 1979. 603 p. Price of five parts, \$125.

Papers are presented on the following subjects: an energy allocation model for periods of severe energy shortage; modeling and simulation of coal conversion for electric power; application of nonlinear programming algorithms to the modeling of energy systems; solar energy systems; the modeling of aquatic environments; optimization techniques in power distribution planning; and models for pest ecosystem management. Attention is also given to: the modeling of social impacts of energy related development; recent advances in the modeling and simulation of electrical power/energy systems; plasmas and lasers; and air and water environmental systems.

A80-20882 Computer modeling of coal gasification reactors. T. R. Blake (Systems, Science and Software, La Jolla, Calif.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 3. Pittsburgh, Pa., Instrument Society of America, 1979, p. 811-823. 19 refs. Research sponsored by the Electric Power Research Institute; Contract No. EX-76-C-01-1770.

The use of computer models in coal gasification reactor process development is discussed. In particular, the paper examines the merits of models for fluidized bed and entrained flow gasifiers wherein detailed representations of the internal gas dynamics, solid particle motion and chemical rate processes are incorporated.

(Author)

A80-20883 Fixed-bed gasifier dynamic model for IGCCP control study. B. C. B. Hsieh, D. J. Ahner (General Electric Co., Schenectady, N.Y.), and G. H. Quentin (Electric Power Research Institute, Palo Alto, Calif.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 3. Pittsburgh, Pa., Instrument Society of America, 1979, p. 825-831.

A mathematical model was formulated to predict the dynamic performance of a dry-ash, air-blown, fixed-bed gasifier to be used in an analytical simulation control study of an integrated gasification combined cycle power plant. The modeling technique, data preparation, objectives and approaches are discussed, as well as the dynamic responses of gasifier output to input variables. (Author)

A80-20884 A single coal particle gasification model. R. R. Cwiklinski, C. G. Vayenas, C. Georgakis, and J. Wei (MIT, Cambridge, Mass.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 3. Pittsburgh, Pa., Instrument Society of America, 1979, p. 833-842. 7 refs. Research supported by the Electric Power Research Institute.

An analytical model of carbon particle gasification in an oxygen-steam-CO2 environment is presented. The model assumes finite H2 diffusivity and CO and H2 are allowed to oxidize infinitely fast at a flame front surrounding the spherical carbon particle. The possibility of multiple steady state solutions is discussed. (Author)

A80-20885 Dynamic modeling of H2S clean-up processes. J. H. Alexander, W. D. Henline, T. R. Blake, and D. E. Wilkins (Systems, Science and Software, La Jolla, Calif.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 3.

Pittsburgh, Pa., Instrument Society of America, 1979, p. 867-879. 7 refs. Research supported by the Electric Power Research Institute.

A mathematical model and associated computer program have been developed for the dynamic simulation of packed absorption columns, heat exchangers, and flash drums which typically comprise product gas H2S removal processes. Calculations and results appropriate to H2S removal systems which employ solvents that separate by purely physical absorption mechanisms are analyzed. These test calculations are based on process system data and physicochemical parameters estimated from existing published information. It is noted that the numerical structure is general enough to incorporate any data.

A80-20886 A thermodynamic assessment of OTEC opencycle power systems. F. C. Chen (Oak Ridge National Laboratory, Oak Ridge, Tenn.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 3. Pittsburgh, Pa., Instrument Society of America, 1979, p. 921-926. 7 refs. Contract No. W-7405-eng-26.

The thermodynamics of open-cycle OTEC power systems are reviewed, and the expected performance of open-cycle plants is assessed. A temperature-entropy diagram of the open-cycle process is presented and related to the various components of the system. Results of recent major open-cycle plant studies for floating platform systems in the submerged, semisubmerged and spar buoy configurations are summarized. An optimal thermal performance model is developed for a generalized open-cycle turbine on the basis of the range of operating parameters established in the system design studies and applied to a typical system. It is found that, for the given system, the performance (net power output per heat transfer area)

tends to maximize at a small flashdown temperature and high water velocity in smooth condenser tubes.

A.I.W.

A80-20887 Modeling and simulation of WECS assisted utility systems. R. G. Deshmukh and R. Ramakumar (Oklahoma State University, Stillwater, Okla.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 3. Pittsburgh, Pa., Instrument Society of America, 1979, p. 927-933. 9 refs. Research supported by Oklahoma State University.

The paper discusses a probabilistic model for wind-electric conversion systems (WECS) and employs it in a simulation study to assess the reliability and capacity credit aspects of WECS operating in parallel with a conventional utility grid, feeding a common load. The major parameters involved and their influence are studied by simulation techniques for a typical WECS located in the site 'Kahuku Upper' on the Hawaiian island of Oahu. Wind speed data over a two-year period collected by the University of Hawaii at Manoa form the basis of this study. The results and discussion should be useful to utility system planners contemplating the incorporation of WECS as a component in their future generation mix. (Author)

A80-20888 An applications analysis for the solar industrial process heat market. S. A. Stadjuhar (Solar Energy Research Institute, Golden, Colo.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 3. Pittsburgh, Pa., Instrument Society of America, 1979, p. 935-942. 8 refs. Contract No. EG-77-C-01-4042.

The importance of the industrial process heat market in terms of energy consumption and amenability of this market to solar thermal technology are examined. An analytical method for evaluating solar industrial process heat systems has been developed and implemented in a flexible, fast calculating, computer code - PROSYS/ECONMAT. The long-term average performance model PROSYS predicts annual energy output for several collector types, including flat-plate, nontracking concentrator, one-axis tracking concentrator, and two-axis tracking concentrator. The companion computer program ECONMAT calculates the solar equipment cost and generates a life cycle cost analysis. Analytical results demonstrate the software flexibility for use in feasibility and parametric sensitivity studies.

(Author)

A80-20889 Analysis of resource pricing for geothermal electric power production. P. Blair, M. Ervolini (Pennsylvania, University, Philadelphia, Pa.), and T. Cassel. In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 3.

Pittsburgh, Pa., Instrument Society of America, 1979, p. 1075-1080. 9 refs. Contract No. ET-78-S-02-4713.

This paper discusses the structure of a decision model for analyzing investment behavior of geothermal resource developers involved in electric power production. In particular, the sensitivity of a number of key investment decision criteria to variations in the geothermal resource price is investigated using the model. In addition a number of alternative resource pricing alternatives being considered by the industry today are reviewed and discussed. (Author)

A80-20890 Supply and demand in input-output analysis for energy modeling. G. H. Mashayekhi (Hydro-Québec, Institut de Recherche, Varennes, Canada). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 3. Pittsburgh, Pa., Instrument Society of America, 1979, p. 1187-1192.

The paper examines the shortcomings of the input-output analysis for energy modeling where price and substitution effect is of great importance. Attention is given to the need for a systematic model which incorporates the demand and supply mechanism. A quadratic input-output analysis is introduced where the demand and supply functions can be incorporated directly into the model. In conclusion, it is noted that to implement the model, the product

demand and factor supply function coefficients should be estimated which will require more work for estimation of these coefficients.

M.E.P

A80-20893 Computer analysis of grids currently used for CdS/Cu2S solar cells. N. K. Annamalai, C. H. Kolbenson, and D. Jensen (Clarkson College of Technology, Potsdam, N.Y.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 3. Pittsburgh, Pa., Instrument Society of America. 1979, p. 1273-1277. 7 refs. NSF Grant No. ENG-78-06263.

A grid is normally used to reduce the power loss in the sheet resistance of a cell. To minimize the power loss, grid geometry and grid spacings should be optimized. Grid optimization was analyzed by using a computer program and circuit model, considering the grid geometry, grid spacings and various light generated currents. The effect of the grid line voltage drop and the current distribution were determined by using a circuit model. (Author)

A80-20894 Optimization of a solar heating system with integral compensation. J. T. Pritchard (Westinghouse Electric Corp., Baltimore, Md.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 3. Pittsburgh, Pa., Instrument Society of America, 1979, p. 1295-1299. 7 refs.

A linearized fourth order model with deterministic parameters is derived for a solar heating system. An optimal regulator solution (ORS) is found for a quadratic cost functional, and the inverse eigenvalue method is used to solve the Riccati equation such that the optimal feedback gain matrix can be found. The regulator problem is converted to a tracking loop problem by having an integrator following the error signal in the forward path. Furthermore, by augmenting the state vector and the state weighting matrix, both the optimal feedback gains and the optimal forward loop integrator gains for a state variable system can be obtained using the standard ORS. Simulations of two quasi-optimally controlled systems demonstrated that much faster temperature response is attainable using the following error, but that the cost is more control energy.

J.P.B.

A80-20913 Mathematical modeling of coal gasification processes. G. D. Andria, D. F. Ronallo, and F. L. Cleary (Bituminous Coal Research, Inc., Monroeville, Pa.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 5. Pittsburgh, Pa., Instrument Society of America, 1979, p. 1991-1995. 8 refs. Contract No. EF-77-C-01-1207.

This paper describes recent developments in the mathematical modeling and computer simulation of coal gasification processes. Special emphasis is placed on thermodynamic equilibrium-type simulators. Such modeling schemes are briefly described in general and with respect to coal gasification processes under development at BCR. The conceptual simplicity and pragmatic utility of these macro-type models are contrasted with their more sophisticated kinetic and fluid dynamic counterparts. This paper conveys the effectiveness and relevance of thermodynamic systems as simple simulators for coal gasification reactors and as integral components of more complex models. Several recent developments in kinetic and fluid dynamic modeling are outlined. (Author)

A80-21010 Measurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants. D. A. Hegg and P. V. Hobbs (Washington, University, Seattle, Wash.). *Atmospheric Environment*, vol. 14, no. 1, 1980, p. 99-116. 48 refs. Research supported by the Electric Power Research Institute.

Airborne measurements of particles and trace gases have been obtained in the plumes from five coal-fired electric power plants situated in the West and Midwest of the United States. From these data, gas-to-particle (g-to-p) converstion rates are estimated from changes in total particle volume, changes in the ratio of the mass of particulate sulfur to the total mass of sulfur (particulate sulfur measured by two techniques), and from particle nucleation rates.

The g-to-p conversion rates ranged from 0 to 5.7% + or · 2.0% of SO2/h for travel times of 10-162 min. The data suggest differences between plants in the partitioning of g-to-p conversion products between condensation onto existing particles and the nucleation of new particles. The relationship between particle surface area and the formation rate of particle volume at large reaction times in the plumes was similar to that found in smog chamber studies. Finally, the SO2-to-particulate sulfate conversion rate was found to correlate well (correlation coefficient - 0.9) with a parameter indicative of the reaction of SO2 in the plumes with ambient OH radicals. (Author)

### STAR ENTRIES

N80-10022 Allerton Press, Inc., New York, N. Y.
STUDY OF HEAT-PIPE HEAT EXCHANGER IN THE SMALL
GAS TURBINE ENGINE SYSTEM

V. K. Shchukin, I. I. Mosin, N. V. Lokai, and Yu. V. Matveev In. its Soviet Aeron., Vol. 21, No. 3 1978 p 93-96 refs Transl. into ENGLISH from Izv. Vyssh. Ucheb. Zaved. Aviats. Tekh. (USSR), v. 21, no. 3, 1978 p 127-132

Copyright. Avail: Allerton Press, Inc., 150 Fifth Ave., N.Y. 10011: \$45.00

A theoretical optimization of the elements of heat-pipe heat exchangers in application to small gas turbine engines (SGTE), is presented in order to study the possibility of using this type of heat exchanger as a SGTE regenerator. The regeneration ratio sigma sub p approximately 0.82 with admissible pressure losses in the heat exchanger passages delta P 6% was obtained. In order to confirm the validity of the theoretical results, an experimental study was made of a heat exchanger matrix consisting of 49 ribbed sodium heat pipes on a specially developed test stand simulating SGTE regenerator operating conditions. This study confirms the possibility of using the heat-pipe heat exchanger as an SGTE regenerator.

## N80-10068 Allerton Press, Inc., New York, N. Y. SELECTION OF OPTIMAL PARAMETERS OF HEAT-PIPE HEAT EXCHANGER FOR A GAS TURBINE ENGINE

N. V. Lokai and I. I. Mosin *In its* Soviet Aeron., v. 22, no. 1 1979 p 30-34 refs Transl into ENGLISH from Izv. Vyssh. Ucheb. Zaved. Aviats. Tekhn. (USSR), v. 22, no. 1, 1979 p 41-46

Copyright. Avail: Allerton Press, Inc., 150 Fifth Ave., New York, N. Y. 10011; \$50.00

Requirements that assist in achieving the maximal heat exchanger degree of regeneration are examined. It is shown that in a specific gas turbine engine equipped with a heat exchanger the degree of regeneration can be improved by observing the following conditions: (1) The heat transfer capacity of the heat exchanger heat pipes must exceed the rate of heat transfer from the gas and air sides: (2) the condition of equality of certain dimensionless groupings on the hot and cold sides of the heat exchanger must be satisfied.

R.E.S.

### N80-10074 Allerton Press, Inc., New York, N. Y. DYNAMICS OF DIESEL FUEL COMBUSTION IN TURRULENT FLOW

F. A. Khamidullin, A. F. Kuzin, O. V. Strogonov, Yu. V. Troitskii, and A. V. Talantov *In its* Soviet Aeron., v. 22, no. 1 1979 p 58-63 refs Transl. into ENGLISH from Izv. Vyssh. Ucheb. Zaved. Aviats. Tekhn. (USSR), v. 22, no. 1, 1979 p 73-80

Copyright. Avail: Allerton Press, Inc., 150 Fifth Ave., New York, N. Y. 10011; \$50.00

A study of diesel fuel and also TS-1 kerosene and B-70 gasoline combustion in a turbulent stream is presented. These fuels are compared and the dependence of the combustion zone length and the combustion time on mixture composition, velocity, and initial temperature under the model combustion chamber conditions was established.

N80-10206\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

### AIRCRAFT ENERGY EFFICIENCY (ACEE) STATUS REPORT

Donald L. Nored, James F. Dugan, Jr., Neal T. Saunders, and Joseph A. Ziemianski *In its* Aeropropulsion 1979 p 1-58 refs

Avail: NTIS HC A20/MF A01 CSCL 21E

Fuel efficiency in aeronautics, for fuel conservation in general as well as for its effect on commercial aircraft operating economics is considered. Projects of the Aircraft Energy Efficiency Program related to propulsion are emphasized. These include: (1) engine component improvement, directed at performance improvement and engine diagnostics for prolonged service life; (2) energy efficient engine, directed at proving the technology base for the next generation of turbofan engines; and (3) advanced turboprop, directed at advancing the technology of turboprop powered aircraft to a point suitable for commercial airline service. Progress in these technology areas is reported.

J.M.S.

N80-10209\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

#### ALTERNATIVE JET AIRCRAFT FUELS

Jack Grobman In its Aeropropulsion 1979 1979 p 129-148 refs

Avail: NTIS HC A20/MF A01 CSCL 21E

Potential changes in jet aircraft fuel specifications due to shifts in supply and quality of refinery feedstocks are discussed with emphasis on the effects these changes would have on the performance and durability of aircraft engines and fuel systems. Combustion characteristics, fuel thermal stability, and fuel pumpability at low temperature are among the factors considered. Combustor and fuel system technology needs for broad specification fuels are reviewed including prevention of fuel system fouling and fuel system technology for fuels with higher freezing points.

# N80-10263\*# Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena. DEEP SPACE NETWORK FEASIBILITY STUDY OF TERMINATING SOUTHERN CALIFORNIA EDISON ELECTRICAL SERVICE TO GOLDSTONE

J. L. Koh *In its* The Deep Space Network 15 Oct. 1979 p 169-175

Avail: NTIS HC A09/MF A01 CSCL 14B

A cost comparison of purchased power versus generated power is discussed. Methods for waste energy recovery are examined and applications for the use of waste energy in heating and cooling systems are presented.

A.W.H.

## N80-10329# Grumman Aerospace Corp., Bethpage, N.Y. THE JET MEMBRANE PROCESS FOR URANIUM SEPARATION AND ENRICHMENT

John W. Brook and Vincent Calia Sep. 1979 145 p refs (RE-586) Avail: NTIS HC A07/MF A01

Isotopic enrichment of both SF6 and UF6 was successfully achieved using a scheme in which the working or carrier fluid is a condensible vapor, which can be thermally, rather than mechanically, pumped. The energy supply can be waste heat or solar energy. The process gas (UF6) is introduced into a chamber in which a heavy condensible gas (the jet) flows. Due to preferential penetration of the UF6 into the jet, the lighter species (U-235)F6 is enriched relative to the heavy species (U-238)F6. The enriched UF6 is collected by a probe facing downstream in the jet and is passed to another unit for further enrichment or to a mass spectrometer for analysis. Laboratory experiments were conducted using a variety of gas combinations to investigate system parameters that were identified as major capital and energy cost drivers. A theoretical study aided in the analysis of data and in providing scaling laws. Cost analysis, based upon the measured UF6 results and the supporting experiments, indicates that the jet membrane is a viable concept for enriching uranium indust-ARH

N80-10361\*# National Aeronautics and Space Administration. Pasadena Office, Calif.

MOLTEN SALT PYROLYSIS OF LATEX Patent Application Albert J. Bauman, inventor (to NASA) (JPL) Filed 27 Apr. 1978 11 p Sponsored by NASA

(NASA-Case-NPO-14315-1; US-Patent-Appl-SN-900659) Avail: NTIS HC A02/MF A01 CSCL 07C

The production of synthetic hydrocarbon liquid fuel from latex rich plants is reported. The pyrolysis of high isoprene latex plants such as Guayule, or extracts thereof, in a molten inorganic salt at temperatures above 300 C is described. The pyrolysis process is examined using a number of inorganic salts and a reactor is described for the hydrogen fuel production.

N80-10374\* National Aeronautics and Space Administration. Pasadena Office, Calif.

START UP SYSTEM FOR HYDROGEN GENERATOR USED WITH AN INTERNAL COMBUSTION ENGINE Patent

John Houseman (JPL) and Donald J. Cerini, inventors (to NASA) (JPL) Issued 5 Jul. 1977 13 p Filed 22 Mar. 1976 Sponsored by NASA

(NASA-Case-NPO-13849-1; NASA-Case-NPO-13907-1;

US-Patent-4,033,133; US-Patent-Appl-SN-668783;

US-Patent-Class-60-606; US-Patent-Class-23-288R;

US-Patent-Class-48-61; US-Patent-Class-48-102A;

US-Patent-Class-48-10-3: US-Patent-Class-48-107:

US-Patent-Class-48-117; US-Patent-Class-48-DIG.8;

US-Patent-Class-60-300; US-Patent-Class-123-3;

US-Patent-Class-123-179R; US-Patent-Class-123-DIG.12; US-Patent-Class-423-650) Avail: US Patent and Trademark

Office CSCL 21D

A hydrogen generator provides hydrogen rich product gases which are mixed with the fuel being supplied to an internal combustion engine for the purpose of enabling a very lean mixture of that fuel to be used, whereby nitrous oxides emitted by the engine are minimized. The hydrogen generator contains a catalyst which must be heated to a pre-determined temperature before it can react properly. To simplify the process of heating up the catalyst at start-up time, either some of the energy produced by the engine such as engine exhaust gas, or electrical energy produced by the engine, or the engine exhaust gas may be used to heat up air which is then used to heat the catalyst.

Official Gazette of the U.S. Patent and Trademark Office

N80-10377\*# National Aeronautics and Space Administration. Pasadena Office, Calif.

CONTINUOUS COAL PROCESSING METHOD AND MEANS Patent Application .

Porter R. Ryason, inventor (to NASA) (JPL) Filed 28 Sep. 1976

31 p Sponsored by NASA (NASA-Case-NPO-13758-2; US-Patent-Appl-SN-727444) Avail: NTIS HC A03/MF A01 CSCL 21D

A coal pump is provided in which solid coal is heated in the barrel of an extruder under pressure to a temperature at which the coal assumes plastic properties. The coal is continuously extruded, without static zones, using, for example, screw extrusion preferably without venting through a reduced diameter die to form a dispersed spray. The dispersed coal may be continuously injected into vessels or combustors at any pressure up to the maximum pressure developed in the extrusion device. The coal may be premixed with other materials such as desulfurization aids or reducible metal ores so that reactions occur, during or after conversion to its plastic state. Alternatively, the coal may be processed and caused to react after extrusion, through the die, with liquid oxidizers, whereby a coal reactor is provided. Alternative utilization of the device may be to secure continuous pyrolysis of the coal or to feed the extruded coal into furnaces NASA operating at pressures near ambient.

N80-10379\* # BDM Corp., McLean, Va. COAL CONVERSION PROCESSES AND ANALYSIS METHODOLOGIES FOR SYNTHETIC FUELS PRODUCTION Final Report

5 Oct. 1979 285 p refs

(Contract NAS8-33608)

(NASA-CR-161322: BDM/W-79-548-TR)

Avail.

NTIS

HC A13/MF A01 CSCL 21D

Information to identify viable coal gasification and utilization technologies is presented. Analysis capabilities required to support design and implementation of coal based synthetic fuels complexes are identified. The potential market in the Southeast United States for coal based synthetic fuels is investigated. A requirements analysis to identify the types of modeling and analysis capabilities required to conduct and monitor coal gasification project designs is discussed. Models and methodologies to satisfy these requirements are identified and evaluated, and recommendations are developed. Requirements for development of technology and data needed to improve gasification feasibility and economies are examined.

N80-10382# Battelle Pacific Northwest Labs., Richland, Wash, ASSESSMENT OF SYNFUEL TRANSPORTATION TO YEAR 2000

W. Wakamiya, K. B. Sebelien, and M. A. Parkhurst Mar. 1979 113 p refs

(Contract EY-76-C-06-1830)

(PNL-2768) Avail: NTIS HC A06/MF A01

The potential problems in the transportation of synthetic fuels (synfuels) are discussed and identified. The emergence of transportation-related problems in shale oil and coal synfuel development expected to be highly dependent upon their chemical similitude with analogous fossil fuels. Definitive resolution of the question of whether new transportation problems exist is dependent upon clear characterization of the synfuels chemical composition. Hydrogen and methanol represent unique cases since these materials are already in commercial production. The major transportation problem identified with fuel economics based on these materials is related to bulk use. To date, shipment volumes are relatively small and, in the case of hydrogen, can be accommodated with costly, more specialized packaging. Scale-up for major energy use may introduce a new set of transportation

N80-10383# Escher Technology Associates, St. Johns, Mich. SURVEY OF LIQUID HYDROGEN CONTAINER TECH-NIQUES FOR HIGHWAY VEHICLE FUEL SYSTEM APPLICA-TIONS

W. J. D. Escher Nov. 1978 66 p refs (Contract EC-77-X-01-2752)

(HCP/M2752-01) Avail: NTIS HC A04/MF A01

The design and operational features of four different liquid hydrogen container types, three of which have served operationally as vehicle fuel tanks, and rough production-lot cost estimates for a nominal 50 gallon horizontal cylindrical liquid hydrogen container applicable to vehicle service are reported. A unique semiautomatic liquid hydrogen service station developed in Germany is described. A general assessment of the state of technology of vehicle hydrogen containers and associated systems is given, including the identification of pacing items recommended to be addressed initially in prospective R and D activities in this DOE

N80-10384# Sandia Labs., Livermore, Calif. APPLICATIONS ANALYSIS OF FIXED SITE HYDROGEN STORAGE

J. J. lannucci and S. L. Robinson May 1979 23 p refs (Contract EY-76-C-04-0789)

(SAND-78-8272) Avail: NTIS HC A02/MF A01

The potential applications and requirements for fixed site storage in a scenario of wide spread hydrogen use are examined and quantified. An envisioned hydrogen production/distribution/ end-use cycle is scrutinized to identify the storage needs for both continuous and intermittent sources including solar. The most pressing need for storage is at the distribution point, in concurrence with current natural gas practice. Caverns and similar underground storage techniques are the most promising modes due to their low cost relative to all other options examined. Since a large volume of natural gas storage is presently in service, a pressing need to develop fixed site hydrogen storage technology (beyond the conversion of this underground storage to hydrogen) was not identified. DOE N80-10386# Department of Energy, Morgantown, W. Va. Energy Technology Center.

FLUIDIZED-BED COMBUSTION OF HIGH SULFUR COALS J. S. Mei, J. S. Halow, U. Grimm, and R. L. Rice Apr. 1979 149 p refs (METC/RI-79/4) Avail: NTIS HC A07/MF A01

The sulfur retention capability of an atmospheric fluidized-bed combustor (AFBC) burning a high sulfur coal was evaluated in light of the EPA proposed New Source Performance Standards and their potential impact on AFBC technology. A high volatile bituminous Pittswick coal with 4.52 percent sulfur content was selected and Greer limestone and Tymochtee dolomite were used as sulfur sorbents. Combustion tests were carried out at various operating conditions to develop AFBC engineering and emissions data on this high sulfur coal. Ninety or greater percent of sulfur retention was attained in 9 of the 19 balance periods. Eighty-five or greater percent sulfur retention was attained in 14 of the 19 balance periods. Results demonstrate that the proposed new standards for sulfur dioxide emissions can be met by AFBC's.

N80-10387# TRW Energy Systems Planning Div., McLean, Va. METHANE RECOVERY FROM COALBEDS Annual Report. Dec. 1977 - Dec. 1978 1978 29 p

(Contract DE-AC21-78MC-08089)

(DOE/MC-08089-T1) Avail: NTIS HC A03/MF A01

Work done in the engineering and integration effort in the Morgantown Energy Technology Center program to recover and utilize methane from coalbeds is summarized. The contract requirements and approach are outlined. The work accomplished includes the development of the Unminable Drilling Plan, performance of testing and data analysis for wells into coal seams, development of three conceptual recovery and utilization designs. Milestone and expenditure charts are provided.

N80-10388# Mobil Research and Development Corp., Princeton,

RESEARCH GUIDANCE STUDIES TO ASSESS GASOLINE FROM COAL BY METHANOL-TO-GASOLINE AND SASOL-TYPE FISCHER-TROPSCH TECHNOLOGIES Final Report Max Schreiner Aug. 1978 324 p refs (FE-2447-13) Avail: NTIS HC A14/MF A01

A technical and economic comparison between the new Mobil methanol-to-gasoline technology under development and the commercially available Fischer-Tropsch technology for the production of motor gasoline meeting U.S. quality standards is presented. Except for the Mobil process, processes used are commercially available. Coproduction of products, namely SNG, LPG and gasoline, is practiced. Four sensitivity cases were also developed in less detail from the two base cases. In all areas, the Mobil technology is superior to Fischer-Tropsch; process complexity, energy usage, thermal efficiency, gasoline selectivity, gasoline quality, investment and gasoline selectivity, investment and gasoline cost. Principal advantages of the Mobil process are its selective yield of excellent quality gasoline with minimum ancillary processing.

N80-10389# Mitre Corp., McLean, Va. NEAR TERM POTENTIAL OF WOOD AS A FUEL Jan. 1979 71 p refs (Contract EG-77-C-01-4101)

(HCP/C4101) Avail: NTIS HC A04/MF A01

The sources of wood as a fuel are cited. Technologies available to expand the near-term use of wood fuel include direct combustion, low-Btu gasification in the presence of air, pyrolysis to char, liquid fuel, and low-Btu gas in the absence of air, and densification. Life-Cycle costs were evaluated for these technologies. Incentives in increase the use of wood fuel in the near term are identified. Systems manufactures, architecture and engineering firms, and users are listed. DOF

N80-10390# Institute of Gas Technology, Chicago, III. DEVELOPMENT OF COMBUSTION DATA TO UTILIZE LOW BTU GASES AS INDUSTRIAL PROCESS FUELS. PROJECT 61004 SPECIAL REPORT NO. 4: HIGH-FORWARD-MOMENTUM BURNER

R. T. Waibel and E. S. Fleming Nov. 1978 42 p refs (Contract EX-76-C-01-2489) (FE-2489-33) Avail: NTIS HC A03/MF A01

Data were gathered to determine the performance of a high-forward-momentum burner when retrofit with three low-to-medium-Btu gases. The burner was fired on the IGT pilot-scale test furnace with a load simulating one zone of a continuous refractory kiln or one instant during the heat-up of a batch kiln. The low- and medium-Btu gases simulated for these combustion trials were Koppers-Totzek oxygen, Wellman-Galusha air, and Winkler air fuel gases. All of the substitute fuels exhibited stable flames when directly retrofit on the burner. Koppers-Totzek oxygen gave a thermal efficiency slightly greater than that for natural gas, but Wellman-Galusha and Winkler air fuel gases each had lower efficiencies. Koppers-Totzek oxygen and Wellman-Galusha air fuel gases had flame lengths longer than that for natural gas, whereas Winkler air fuel gas had a flame length comparable to the natural gas flame.

#### N80-10391# Institute of Gas Technology, Chicago, III. DEVELOPMENT OF GAS TURBINE FUELS AND COMBUS-TION; AN OVERVIEW

A. A. Fejer 1979 12 p refs Presented at New Fuels and Advances in Combustion Technologies, New Orleans, 26-30 Mar.

(Contract EX-76-C-01-2433)

(CONF-790337-4) Avail: NTIS HC A02/MF A01

The characteristic features of gas turbine engines are described contrasting them with their chief competitor, the steam cycle. The focus is on the aerodynamic processes in the combustion chambers of traditional engines and includes an outline of the changes that are to be expected with the introduction of the synthetic and coal derived fuels. DOF

#### N80-10392# Institute of Gas Technology, Chicago, III. COAL CONVERSION SYSTEMS: TECHNICAL DATA BOOK

1978 585 p

(Contract EX-76-C-01-2286)

(HCP/T2286-01; LC-78-606163; TP759.C52) Avail: NTIS HC A25/MF A01

Technical information necessary for the design and operation of coal conversion facilities is provided. Such facilities include the conversion of coal to environmentally acceptable fuel forms, or to electric power by way of advanced technologies. Physical, chemical, thermodynamic data, and correlations are included along with procedures necessary to develop a new process or to design, build, and operate a coal conversion plant. DOF

#### N80-10393# Mitre Corp., McLean, Va. METREK Div. BIOMASS-BASED ALCOHOL FUELS: THE NEAR-TERM POTENTIAL FOR USE WITH GASOLINE

W. Park, G. Price, and D. J. Salo Aug. 1978 84 p refs (Contract EG-77-C-01-4101)

(HCP/T4101-03) Avail: NTIS HC A05/MF A01

The requirements and prospects for a nationwide alcoholgasoline fuel system based on alcohols derived from biomass resources are assessed. Technological and economic factors of the production and use of biomass-based methanol and ethanol fuels are evaluated relative to achieving 5 or 10 percent alcohol-gasoline blends by 1990. It is concluded the maximum attainable is a nationwide 5 percent methanol or ethanol-gasoline system replacing gasoline by 1990. Relative to existing gasoline systems, costs of alcohol-gasoline systems will be substantial.

DOF

#### N80-10395# Battelle Columbus Labs., Ohio. SUGAR CROPS AS A SOURCE OF FUELS. VOLUME 1: AGRICULTURAL RESEARCH Final Report

E. S. Lipinsky, S. Kresovich, T. A. McClure, D. R. Jackson, W. T. Lawhon, A. A. Kayloncu, and E. L. Daniels 31 Jul. 1978 222 p refs

(Contract W-7405-eng-92)

(TID-29400/1) Avail: NTIS HC A10/MF A01

Narrow-row spacing experiments were conducted. They promote more rapid canopy closure which helps a short season

location more than a long season location. Sweet sorghum experiments indicate favorable yields compared with sugarcane, and yield increases with close spacing in all areas. The project team concludes that sweet sorghum has considerable fuel potential, based on its ability to grow wherever corn or soybeans grow. Initial evaluation of the Tilby cane separator process, which separates the pith from the rind fiber without crushing and grinding, indicates that the process is promising as a means of obtaining fermentable sugars at low cost. The advantages of the Tilby process are low energy consumption, high value for the rind fiber coproducts in products that perform like plywood, pulp or paper making, and ability to use high fiber sugarcane or sweet sorghum.

N80-10396# Princeton Univ., N. J. Dept. of Mechanical and Aerospace Engineering.

BIOMASS ENERGY ENHANCEMENT: A REPORT TO THE PRESIDENT'S COUNCIL ON ENVIRONMENTAL QUALITY Final Report

Michael Jerry Antal, Jr. Jul. 1978 140 p refs (Contract EQ9AD499; Grant EPA-R-804836)

(PB-296624/0) Avail: NTIS HC A07/MF A01 CSCL 21D

The technical and economic potential for enhancing the energy value of biomass is examined and the feasibility of using solar heat to gasify biomass is developed. With improved technology, this would permit the energy carried by the synthetic fuel leaving the conversion facility to exceed or equal the biomass fuel input. The potential impact of biomass energy enhancement technologies is examined in a case study for New Jersey. The outcome is favorable for solar heat.

N80-10397# New Mexico Univ., Albuquerque. Technology Application Center.

HYDROGEN AS A FUEL CITATIONS FROM THE INTERNATIONAL AEROSPACE ABSTRACTS DATA BASE Progress Report, 1977 - Jul. 1979

Gerald F. Zollars Aug. 1979 24 p Sponsored in part by NTIS

(NTIS/PS-79/0771/0) Avail: NTIS HC \$28.00/MF \$28.00 CSCL 21D

The 219 citations concern the use of hydrogen as a fuel for aircraft and automobiles. Topics covered include storage, fuel combustion studies, gas mixtures, and energy conversion efficiency.

N80-10398# Wisconsin Univ. Center System, Rice Lake.
ENERGY AND ECONOMIC ASSESSMENT OF ANAEROBIC
DIGESTERS AND BIOFUELS FOR RURAL WASTE MANAGEMENT Final Report

Tom P. Abeles, David Freedman, Laura A. DeBaere, and David A. Ellsworth Dec. 1978 176 p refs

(Grant EPA-R-804457)

(PB-296523/4; EPA-600/7-78-174) Avail: NTIS HC A09/MF A01 CSCL 21D

A technological and socioeconomic assessment of anaerobic digester feasibility for small to midsize livestock operations was undertaken. Three full scale digesters and one pilot scale facility were under various degrees of monitoring and evaluation to assess design and operational problems as they affect the adoption and establishment of farm scale anaerobic digestors. Materials handling presented the greatest obstacle to satisfactory operation of the full scale systems. The system becomes more economical if the biogas can be used on site for direct thermal loads, suggesting that the economic feasibility of anaerobic digesters is site specific and should be closely integrated with the total farming operation.

N80-10400# Economics, Statistics and Cooperatives Service, Washington, D. C. Natural Resource Economics Div.

GROWING ENERGY: LAND FOR BIOMASS FARMS Final Report

Kathryn A. Zeimetz Jun. 1979 41 p refs (PB-296650/5; AER-425) Avail: NTIS HC A03/MF A01 CSCL

The utilization of high quality land to maximize energy gain and minimize environmental hazards are considered. It was

concluded that alternate sources of food and fiber production must be allocated as some lands are diverted to energy farms.

N80-10401# New Mexico Univ., Albuquerque. Technology Application Center.

HYDROGEN PRODUCTION. CITATIONS FROM THE INTERNATIONAL AEROSPACE ABSTRACTS DATA BASE Report, 1977 - Jul. 1979

Gerald F. Zollars Springfield, Va. NTIS Aug. 1979 45 p. Sponsored by NTIS

(NTIS/PS-79/0773/6) Avail: NTIS HC \$28.00/MF \$28.00 CSCL 21D

This bibliography cites 169 articles from the international literature concerning hydrogen production. Techniques examined include solar energy conversion, coal gasification, thermal dissociation, and water electrolysis.

N80-10402# New Mexico Univ., Albuquerque. Technology Application Center.

HYDROGEN STORAGE AS A HYDRIDE. CITATIONS FROM THE INTERNATIONAL AEROSPACE ABSTRACTS DATA BASE Report, 1975 - Jul. 1979

Gerald F. Zollars Springfield, Va. NTIS Aug. 1979 29 p Sponsored by NTIS

(NTIS/PS-79/0772/8) Avail: NTIS HC \$28.00/MF \$28.00 CSCL 21D

Articles from the international literature concerning the storage of hydrogen in various metal hydrides are cited. Binary and intermetallic hydrides are considered. Specific alloys discussed are iron-titanium, lanthanum-nickel, magnesium-copper, and magnesium-nickel among others. This bibliography contains 97 entries.

N80-10414# Grumman Aerospace Corp., Bethpage, N.Y. System Sciences.

MINIMUM COST TRANSMITTER-RECEIVER ANTENNA PAIRS

G. Moyer and H. Hinz Sep. 1979 26 p refs (RM-690) Avail: NTIS HC A03/MF A01

There are two types of solutions when applying the optimal control theory to antenna design. The cost (C) is an arbitrary function of the radii of the receiver (R sub 0) and of the transmitter (R sub 1). When the received power (W sub 0) divided by the area is small, as happens in the proposed satellite solar power station (SSPS), the value of the power density at the center of the receiver should be left open. Then the problem simplifies to such an extent that it can be solved with considerable accuracy using only ordinary calculus and graphs provided. The product (R sub 0) (R sub 1) depends only on the power ratio (W sub 0) (W sub 1) and can be obtained from a graph. The radius of the transmitter can then be replaced in the cost function and the best value of the radius of the receiver can be found from dC/d (R sub 0) = 0. The transmitter and receiver power density distributions are proportional and resemble a truncated Gaussian distribution. As W sub O/sq pi (R sub O) becomes larger the power density at the center of the receiver reaches its upper limit. After this point the problem must be solved with an additional state variable and constraint using a computer program. Numerical results are presented for the SSPS. A.R.H.

N80-10443# Los Alamos Scientific Lab., N. Mex.
THE 50kA FLUX PUMP FOR THE SUPERCONDUCTING
TRANSMISSION LINE TEST BED

Stefan L. Wipf Aug. 1978 13 p refs (Contract W-7405-eng-36)

(LA-6953-MS) Avail: NTIS HC A02/MF A01

A 50 kA, rotating field-type flux pump is suggested as a power supply for the superconducting transmission line test bed. A basic design was developed as an extension to a previous 12 kA pump. The important design principles are explained. Special emphasis is given to the less-certain aspects of the extrapolation and eight improvements are suggested. The three most important ones are choosing the material for a pump sheet, making the pump sheet out of a specially designed wire cloth, and arranging the return leads adjacent to the pump sheet through the pole gap. Other improvements easily incorporated into the

basic design are shading poles, rare earth pole pieces, and superconducting outside windings.

N80-10472# Los Alamos Scientific Lab., N. Mex.
PERFORMANCE LIMITS FOR LIQUID-METAL HEAT PIPES
CONTAINING LONG ADIABATIC SECTIONS

F. Coyne Prenger, Jr. and J. E. Kemme 1979 6 p refs Presented at 14th Intersociety Energy Conversion Conf., Boston, 5-10 Aug. 1979

(Contract W-7405-eng-36)

(LA-UR-79-1241) Avail: NTIS HC A02/MF A01

Analytical and experimental investigation of the performance limits of liquid-metal heat pipes containing long adiabatic sections were made. An analytical model describing the vapor flow and including the effects of wall friction and compressibility is presented. Performance limits and axial temperature profiles of a sodium-filled, stainless steel heat pipe were measured for comparison with the analytical results. Complete validation of the analytical model requires further experiments. The results show that a transition from laminar turbulent vapor flow occurs in the adiabatic section with an accompanying decrease in the heat pipe performance limit. The reduced performance results from an increased wall friction factor for the turbulent flow.DOE

N80-10502# Oak Ridge National Lab., Tenn. STEAM TURBINES

John T. Meador Oct. 1978 110 p refs (Contract W-31-109-eng-38)

(ANL/CES/TE-78-7) Avail: NTIS HC A06/MF A01

The selection, classification, and average shaft efficiencies are discussed of some small-to-medium size steam turbines that can be used for base-load, turbine-generator units to meet both the electrical and thermal energy demands of several communities, as specified in evaluations for Integrated Community Energy Systems (ICES). Shaft efficiencies are evaluated by combining the average internal turbine efficiencies and the Rankine steam-cycle efficiencies for several combinations of steam inlet conditions under conditions of both fully condensing and non condensing exhaust steam. Efficiencies of very small turbines for mechanical drive of compressors or power plant auxiliaries also are estimated. Two examples are given of the input data necessary to establish preliminary costs for an industrial-extraction type turbine that may be adapted to ICES. Some data on operational considerations and cost factors are included.

N80-10504# Atomics International, Golden, Colo. Rockwell Hanford Operations.

QUALITY ASSURANCE IN ALTERNATIVE ENERGY SOURCES

R. D. Hammond 2 Feb. 1979 14 p Presented at the First Annual Western Energy Quality Assurance Seminar, San Francisco, 7 Apr. 1979

(Contract EY-77-C-06-1036; Contract EY-77-C-1030) (RHO-SA-107) Avail: NTIS HC A02/MF A01

The Hanford history, description of the radwaste efforts taking place, future plans, and highlights of the increasing role of quality assurance are outlined.

N80-10584# Oak Ridge National Lab., Tenn.
COMPUTER SOFTWARE TO CALCULATE AND MAP
GEOLOGIC PARAMETERS REQUIRED IN ESTIMATING
COAL PRODUCTION COSTS Final Report

R. B. Honea, C. H. Petrich, D. L. Wilson, C. A. Dillard, R. C. Durfee, and J. A. Faber (Denison Univ.) Apr. 1979 124 p refs Sponsored in part by Electric Power Research Inst. (Contract W-7405-eng-26; EPRI Proj. 804) (EPRI-EA-674) Avail: NTIS HC A06/MF A01

A general overview of the software and methodology developed to calculate parameters such as surface slope and coal seam thickness and depth is provided along with sample map output which indicates the geographical distribution of these geologic characteristics. A user guide for implementing the software is included. Coal production, coal recovery, and coal resource calculation studies are reviewed. This system will be useful to utilities and coal mine operators alike in estimating

costs through comprehensive assessment before mining takes place.

N80-10593 Drexel Univ., Philadelphia, Pa.

OPTIMAL CONTROL OF DISTRIBUTED PARAMETER SYSTEMS FOR SOLAR THERMAL APPLICATIONS Ph.D. Thesis

Abraham Orbach 1979 252 p

Avail: Univ. Microfilms Order No. 7923085

The necessary conditions for optimality, which generate a set of equations whose solution yields the optimal control, were derived. It was shown that if the system and the performance index were bilinear and if the control vector was constrained, the optimal solution yielded a bang-bang policy for which the switching functions were obtained. These results were applied to the optimal control of the solar collector loop systems where the objective was to control the fluid velocity so as to maximize the net energy collected. A sensitivity study of a nonlinear first order in time and space system is presented. Three types of distributed parameter models, which represent the dynamics of the flat plate solar collector were derived.

N80-10596\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

NASA-LEWIS CLOSED-CYCLE MAGNETOHYDRODYNAM-ICS PLANT ANALYSIS

Paul F. Penko 1979 13 p refs Presented at Closed-Cycle Magnetohydrodynamics Specialists Meeting, Bozeman, Montana, 21 Jun. 1979

(Contract EF-77-A-01-2674)

(NASA-TM-79249; DOE/NASA-2674-79/7; E-159) Avail: NTIS HC A02/MF A01 CSCL 10A

A brief review of preliminary analyses of coal fired closed cycle MHD power plants is presented. The performance of three power plants with differing combustion systems were compared. The combustion systems considered were (1) a direct coal-fired combustor, (2) a coal gasifier with in-bed desulfurization and (3) a coal gasifier requiring external fuel gas cleanup. Power plant efficiencies (auxiliary power excluded) were 44.5, 43, and 41 percent for the three plants, respectively.

N80-10596# General Electric Co., Schenectady, N. Y. Energy Systems Programs Dept.

THE FIRST SMALL POWER SYSTEM EXPERIMENT, PHASE 1: ENGINEERING EXPERIMENT NO. 1 Final Report, 5 Jul 1978 - 4 May 1979

H. E. Jones et al 1978 570 p Prepared for JPL (Contract JPL-955116)

(NASA-CR-162417) Avail: NTIS HC A25/MF A01 CSCL

Conceptual designs were generated for several small solar thermal electric power plant configurations with a nominal size of one MWe and 0.4 annual capacity factor. Three startup times for a near term engineering experiment were considered for an application involving a small community and utility system. System characteristics, performance, and costs were determined for the nominal size plants. Size variations of from 0.5 to 10 MWe and from zero storage capacity to 0.7 annual capacity factor were evaluated with respect to cost and performance impact. Basic design goals for all the near term systems were: (1) high operational reliability; (2) minimum risk of failure; (3) commercial potential; and (4) low total experiment cost.

K.L.

N80-10599# Committee on Science and Technology (U.S. House).

PASSIVE SOLAR ENERGY PROGRAMS AND PLANS

Washington GPO 1978 432 p Hearing before the Subcomm. on Advanced Energy Technologies and Energy Conservation Res., Development and Demonstration of the Comm. on Sci. and Technol., 95th Congr., 2d Sess., 19 Sep. 1978

(GPO-36-211) Avail: Subcomm. on Advanced Energy Technologies and Energy Conservation Res., Development and Demonstration

Testimony delivered and statements received regarding passive solar energy systems development under the Solar Heating

and Cooling Demonstration Act (PL 93-409) are presented. Basic approaches are described as well as the use of specific heat absorbing materials in building construction and the use of windows and baffles to control the amount of sunlight received. Additional research needs are examined. Market demand, technology transfer, and technology utilization are also consid-

N80-10600\*# RCA Labs., Princeton, N. J. David Sarnoff Research Center.

ANALYSIS OF S-BAND SOLID-STATE TRANSMITTERS FOR THE SOLAR POWER SATELLITE Final Report, 1 Nov. 1978 - 1 Jun. 1979

E. F. Belohoubek, M. Ettenberg, H. C. Huang, M. Nowogrodzki, and F. N. Sechi 1 Jun. 1979 79 p refs (Contract NAS9-15755)

(NASA-CR-160320) Avail: NTIS HC A05/MF A01 CSCL 10A

The possibility of replacing the Reference System antenna in which thermionic devices are used for the dc-to-microwave conversion, with solid-state elements was explored. System, device, and antenna module tradeoff investigations strongly point toward the desirability of changing the transmitter concept to a distributed array of relatively low power elements, deriving their dc power directly from the solar cell array and whose microwave power outputs are combined in space. The approach eliminates the thermal, weight, and dc-voltage distribution problems of a system in which high power tubes are simply replaced with clusters of solid state amplifiers. The proposed approach retains the important advantages of a solid state system: greatly enhanced reliability and graceful degradation of the system. A.R.H.

N80-10601\*# Honeywell, Inc., Minneapolis, Minn.
OCMULGEE NATIONAL MONUMENT VISITOR CENTER SOLAR HEATING AND COOLING SYSTEM DESIGN REVIEW DATA

May 1978 72 p refs Prepared for NASA and DOE (Contract NAS8-32093)

(NASA-CR-150706) Avail: NTIS HC A04/MF A01 CSCL 10A

The design of a solar heating and cooling system is documented. Solar collectors, design approaches, system trade studies, and preliminary specifications are discussed.

N80-10602\*# Honeywell, Inc., Minneapolis, Minn. Resources Center.

SOLAR HEATING AND COOLING SYSTEMS DESIGN AND DEVELOPMENT Quarterly Report, 9 Jul. - 9 Oct. 1976 Oct. 1976 81 p Prepared for DOE (Contract NAS8-32093)

(NASA-CR-150618; HONEYWELL-F3437-QR-101) Avail: NTIS HC A05/MF A01 CSCL 10A

Solar heating and heating/cooling systems were designed for single family, multifamily, and commercial applications. Subsystems considered included solar collectors, heat storage systems, auxiliary energy sources, working fluids, and supplementary controls, piping, and pumps. K.L.

N80-10603\*# Energy Research Corp., Danbury, Conn. TECHNOLOGY DEVELOPMENT FOR PHOSPHORIC ACID FUEL CELL POWERPLANT, PHASE 2 Quarterly Report Larry Christner Jun. 1979 72 p Prepared for DOE (Contract DEN3-67)

(NASA-CR-159705; DOE/NASA/0067-79-2; QR-3) Avail: NTIS HC A04/MF A01 CSCL 10A

A technique for producing an acid inventory control member by spraying FEP onto a partially screened carbon paper backing is discussed. Theoretical analysis of the acid management indicates that the vapor composition of 103% H3PO4 is approximately 1.0 ppm P4010. An SEM evaluation of corrosion resistance of phenolic resins and graphite/phenolic resin composites in H3PO4 at 185 C shows specific surface etching. Carbonization of graphite/phenolic bipolar plates is achieved without blistering.

N80-10604\*# University of Western Kentucky, Bowling Green. MSFC SOLAR HEATING AND COOLING HIGH SPEED PERFORMANCE (HISPER) CODE VALIDATION Report

Henry M. Healey 12 Oct. 1979 15 p (Contract NAS8-33387)

(NASA-CR-161323) Avail: NTIS HC A02/MF A01 CSCL 10A

The status of the Solar Heating and Cooling Project is reported. Modifications to the HISPER program are outlined, and recommendations concerning the validation study of HISPER are included. F.O.S.

N80-10605# Westinghouse Electric Corp., Eddystone, Pa. SCREENING EVALUATION OF NOVEL POWER CYCLES INTEGRATED WITH GASIFICATION PLANTS Final Report R. W. Foster-Pegg and R. V. Garland Feb. 1979 136 p. (Contract EPRI Proj. 990-3)

(EPRI-AF-1002) Avail: NTIS HC A07/MF A01

Three basic plant configurations were studied: (1) the condensing combined cycle, which includes combustion turbines. gas expanders and condensing steam turbines; (2) the single cycle, which is comprised of combustion turbines and gas expanders, but no steam turbines; and (3) the noncondensing combined cycle, which utilizes combustion turbines, gas expanders and a non-condensing steam turbine. The most efficient plant configuration studied included a non-condensing steam turbine. The best plant heat rate calculated for this configuration is 7956 Btu/Kwh.

N80-10606# Argonne National Lab., III. Materials Science

MATERIALS TESTING FOR CENTRAL RECEIVER SOLAR-THERMAL POWER SYSTEMS

S. Majumdar 1979 14 p (Contract W-31-109-eng-38)

(DOE/TIC-10103) Avail: NTIS HC A02/MF A01

The determination of specific elevated temperature mechanical properties of materials used for critical components in solar control receiver power systems is described. The biaxial creep fatique testing of type 316H stainless steel superheater tubing is discussed. A survey of sodium effects on candidate materials for solar-thermal electric piping and steam generators is presented. The mechanical properties data generation is evaluated.

N80-10607# Department of Energy, Washington, D. C. Energy Information Administration.

ECONOMIC STRUCTURE, AGGREGATE PRODUCTION FUNCTIONS AND THE DEMAND FOR ENERGY AS AN INTERMEDIATE PRODUCT: A PRELIMINARY ANALYSIS G. M. Lady Dec. 1978 57 p refs

(DOE/EIA-0103/8) Avail: NTIS . HC A04/MF A01

The relationship between the price elasticity of demand for energy as a factor of production and differences in economic structure was investigated. A model of general economic equilibrium is constructed utilizing a constant-elasticity-ofsubstitution production function. Using this model the price elasticity of demand for an intermediate product (energy) is determined under alternative structural assumptions (i.e., the degree to which the production process for the intermediate product directly utilizes primary factors of production). For an open economy and the case of energy, these assumptions could concern the degree to which the economy utilizes its own versus imported energy resources.

N80-10608# Sandia Labs., Albuquerque, N. Mex. DISPERSED POWER SYSTEMS AND TOTAL ENERGY

V. L. Dugan Nov. 1978 3 p Presented at AIAA Conf. on Solar Energy, Phoenix, Ariz., 27 Nov. 1978 (Contract EY-76-C-04-0789) NTIS

(SAND-78-2006C; Conf-781133-3)

Avail: HC A02/MF A01

The variations of solar systems considered for dispersed applications are defined, and their relative benefits and costs are examined. Also, the role and benefits of total energy systems in dispersed applications are discussed. Although dispersed solar power systems offer large stored energy multiplication factors, they exhibit a large materials and land dependency. The importance of using most plentiful and available materials and planning a recycling materials use strategy are emphasized. DOE

N80-10609# Sandia Labs., Albuquerque, N. Mex. SAFETY AND ENVIRONMENTAL IMPLICATIONS DOE/ SANDIA MIDTEMPERATURE SOLAR SYSTEMS TEST FACILITY .

J. A. Leonard Nov. 1978 7 p Presented at Environ. Control Symp., Washington, D.C., 28 Nov. 1978

(Contract EY-76-C-04-0789)

Conf-781109-8) (SAND-78-2292C; NTIS

HC A02/MF A01

The Midtemperature Solar Systems Test Facility (MSSTF) in Albuquerque, New Mexico, is presented. The MSSTF is, at 32 kWe, the largest solar electric power plant in the U.S. and also represents the world's first application of the solar total energy concept to an actual load, an 1100 sq m office building.

N80-10610# Booz-Allen and Hamilton, Inc., Bethesda, Md. EPRI NEW ENERGY RESOURCES DEPARTMENT STRAT-EGY PAPER Final Report, Jan. 1979

Michael Lotker 1979 114 p (EPRI-ER-979) Avail: NTIS HC A06/MF A01

The rationale for national and utility industry involvement in new energy resources (NER) technology is presented. The procedures currently being used to formulate programs in each of the NER technologies are described. DOF

N80-10611# California Univ., Berkeley. Lawrence Berkeley

#### ANOTHER LOOK AT ENERGY CONSERVATION

L. Schipper 1978 24 p refs Presented at Amer. Econ. Assoc., Chicago, 30 Aug. 1978

(Contract W-7405-eng-48).

(LBL-7893; Conf-7808104-1) Avail: NTIS HC A02/MF A01 The need for energy conservation in U.S. buildings, industry and the transportation sector, the effects of the amount and cost of energy supplies on energy conservation, and goals of a national energy policy are discussed.

N80-10612# System Development Corp., Santa Monica, Calif. THE 10MW(e) SOLAR THERMAL CENTRAL RECEIVER PILOT PLANT: HELIOSTAT FOUNDATION AND INTERFACE STRUCTURE INVESTIGATION

R. K. Shogren and J. T. Phillips 28 Aug. 1978 87 p refs Sponsored by Sandia Labs.

(Contract EY-76-C-04-0789)

(SAND-78-8180) Avail: NTIS HC A05/MF A01

Foundation design requirements for heliostats for the 10 MWe Solar Thermal Power Plant (STPP) were investigated. Soils data were reviewed and a soils investigation specification and recommendations were prepared as required. Foundation to collector interface requirements were studied. Candidate foundation designs were prepared with associated cost studies. Grading requirements recommendations consistent with technical and budgetary restrictions, and recommendations for construction and test of prototype foundations were developed.

N80-10613# Battelle Pacific Northwest Labs., Richland, Wash. SUMMARY REPORT OF THE SOLAR REFLECTIVE MATERI-ALS TECHNOLOGY WORKSHOP

M. A. Lind and L. E. Ault Oct. 1978 93 p Workshop held at Denver, 28-30 Mar. 1978

(Contract\_EY-76-C-06-1830)

(PNL-2763; Conf-780380) Avail: NTIS HC A05/MF A01

Solar reflector materials technology was assessed. Metals, metallic films and alloys, and dielectric or ceramic stacks were considered as reflecting surface materials. Protective coatings discussed included polymer paints and films, inorganic coatings, and thin glass. The mirror support structures considered were polymer foams, cellular glass, aluminum honeycomb, wood, and fiberglass and epoxy composites. The requirements and properties for reflector materials were discussed along with environmental tests and actual field experiences with solar collector structures. High

concentration ratio and central receiver concepts were emphasized. K.L.

N80-10616# Combustion Engineering, Inc., Windsor, Conn. Power Systems Group.

MDAC/ROCKETDYNE SOLAR RECEIVER: DESIGN REVIEW

H. M. Payne Aug. 1978 130 p refs (Contracts EY-76-C-04-0789; AT(29-1)-789)

(SAND-78-8188; ASA-78-06) Avail: NTIS HC A07/MF A01

The adequacy of the design in meeting the requirements of the solar central receiver (boiler) over a commercial lifetime of 30 years was assessed for an external solar heated receiver, composed of a multiple of modular panels arranged in parallel and operating on the once-through steam generation principle. Each panel is composed of welded tangent tubes, connected between inlet and outlet headers. Subcooled water enters the bottom headers, flows upward, absorbs heat, produces saturated steam throughout the two phase region, and exits at the top as superheated steam. Tube size and material are the same for both commercial and pilot plants. Panel sizes are different between the two plants. Commercial plant heat flux is approximately 2.8 times that of the pilot plant. Structural supports and attachments of both designs are similar. Control of final superheat temperature is maintained by varying the water flow to each of the panels, according to the thermal absorption of each panel.

N80-10617# Department of Energy, Oak Ridge, Tenn. Technical Information Center.

ENERGY INFORMATION DATA BASE. CORPORATE AUTHOR ENTRIES Progress Report, Jun. 1978 - Mar. 1979

Mar. 1979 40 p

(DOE/TIC-4585-R1-Suppl-1) Avail: NTIS HC A03/MF A01 This supplement contains additions to TID-4585-R1 and is

intended to be used with that publication. Future supplements will be cumulative from June 1978 until another revision is DOE

N80-10618# Department of Energy, Washington, D. C. **NATIONAL ENERGY PLAN 2** 

1979 355 p (DOE/TIC-10109) Avail: NTIS HC A16/MF A01

The Administration's second National Energy Plan is presented. The past, present, and future of energy supply and demand for the U.S. is discussed.

N80-10619# California Univ., Livermore. Lawrence Livermore

**ENERGY TRANSITION IN CALIFORNIA** 

M. N. Christensen 1979 25 p refs

(Contract W-7405-eng-48) (UCRL-15003) Avail: NTIS HC A02/MF A01

Major elements of consensus within current energy debates are discussed. Implications of that consensus for development of large scale supply facilities, decisions by end-users of energy, and prospects for future demands for energy are also discussed. Events and circumstances in California are focused but relevant information from other places is also used.

N80-10620# Department of Energy, Washington, D. C. ENERGY SUPPLY AND DEMAND IN THE MIDTERM: 1985, 1990, AND 1995 Analysis Report

Apr. 1979 223 p

(DOE/EIA-0102/52) Avail: NTIS HC A10/MF A01

To account for the uncertainty inherent in projecting future energy production, consumption, prices, and associated variables, five basic projection series (A-E) are presented. These series constitute variations in assumptions influencing energy supply and demand curves. High demand is assumed for Series A and B, and low demand is assumed for D and E. High supply is assumed for Series A and D, and low supply is assumed for Series B and E. Series C assumes medium supply and demand. Two additional scenarios, C High and C Low, evaluate the sensitivity of the Series C forecasts to variations in the projected world of oil price. A computer model, called the 'midterm energy forecasting system', simulates the interactions of energy suppliers and consumers in the marketplace.

DOE

N80-10621# California Univ., Berkeley. Lawrence Berkeley Lab.

### ENERGY CONSERVATION AND THE ENVIRONMENT: CONFLICT OR COMPLEMENT

L. Schipper Sep. 1978 84 p refs Presented at Conf. on Impacts and Risks of Energy Strategies, Stockholm, Sweden, Sep. 1978 and the Environmental Secretariate, Organization for Economic Cooperation and Development, Paris, Oct. 1978 (Contract W-7406-eng-48)

(LBL-7882; Conf-7809141-1; Conf-7810167-1) Avail: NTIS HC A05/MF A01

The relationship among energy, the environment, and economic well-being is discussed. The confusing aspects were sorted out in order to show how goals relating to the efficient use of energy are aligned both with traditional economic goals and with modern environmental goals. The role of energy in the economy was analyzed and the origins of many of the misconceptions about that role were traced.

N80-10623# California Univ., Livermore. Lawrence Livermore

### METHODS OF ESTIMATING THE RELIABILITY OF WIND ENERGY SYSTEMS WITH STORAGE

C. R. Glassey and G. F. Moyer 1978 61 p refs (Contract W-7405-eng-48) (UCRL-15005) Avail: NTIS HC A05/MF A01

Some preliminary results obtained in analyzing the reliability of wind generator storage systems are presented. The investigation took two separate approaches, simulation and probabilistic modeling, to reveal the trade-offs which can be made between generating capacity and storage capacity to attain a desired level of reliability. The performance criterion used throughout this work was the frequency of occurrence of empty storage. This criterion was essentially the same as the frequency of loss of load. DOE

## N80-10624# Brookhaven National Lab., Upton, N. Y. SOLAR ASSISTED HEAT PUMP OVERVIEW AND SUMMARY OF IN-HOUSE RESEARCH

John W. Andrews Sep. 1978 5 p refs Presented at the 3rd Ann. Solar Heating and Cooling R and D Contractors' Meeting, Washington, D.C., 24 Sep. 1978 (Contract EY-76-C-02-0016)

(BNL-24911; Conf-780983-2) Avail: NTIS HC A02/MF A01 The following areas of solar assisted heat pump research and development are overviewed: (1) development of special heat pump tuned to take advantage of the 40 to 100 F source temperature range appropriate for solar assist; (2) identification of low cost, solar energy collection and storage subsystems appropriate for the solar assist function; and (3) analysis of solar assisted heat pump systems to determine what component parameters are required to produce economically competitive systems.

# N80-10625# Battelle Pacific Northwest Labs., Richland, Wash. METHODOLOGY FOR IDENTIFYING MATERIALS CONSTRAINTS TO IMPLEMENTATION OF SOLAR ENERGY TECHNOLOGIES

J. W. Litchfield, R. L. Watts, W. E. Gurwell, J. N. Hartley, and C. H. Bloomster Jul. 1978 91 p refs (Contract EY-76-C-06-1830)

(PNL-2711) Avail: NTIS HC A05/MF A01

A materials assessment methodology for identifying specific critical material requirements that could hinder the implementation of solar energy was developed and demonstrated. The methodology involves an initial screening process, followed by a more detailed materials assessment. The detailed assessment considers such materials concerns and constraints as process and production constraints, reserve and resource limitations, lack of alternative supply sources, geopolitical problems, environmental and energy concerns, time constraints, and economic constraints. Data for 55 bulk and 53 raw materials required in the example photovoltaic systems are available on the data base. Engineering and bulk

material requirements were defined for one photovoltaic system, thirteen photovoltaic cells, ten solar heating and cooling systems, and two agricultural and industrial process heat systems.

N80-10626# Sandia Labs., Albuquerque, N. Mex.
SENSITIVITY STUDY OF BRAYTON CYCLE POWER PLANT
PERFORMANCE

Carl C. Hiller Aug. 1978 36 p refs (Contract EY-76-C-04-0789)

(SAND-78-8020) Avail: NTIS HC A03/MF A01

The efficiency of Brayton cycle power plants is investigated. The parameters and configurations examined include open and closed air cycles, optimum pressure ratio, helium versus air working fluids, turbine and compressor isentropic efficiencies, recuperator effectiveness, turbine inlet temperature, heat rejection temperature, pressure drop losses, with/without intercooling, and with/without reheat. Equation derivations, a computer listing, and a hand calculator program listing are included.

N80-10627# Oak Ridge National Lab., Tenn.
SURVEY OF SOLAR THERMAL ENERGY STORAGE
SUBSYSTEMS FOR THERMAL/ELECTRIC APPLICATIONS

C. L. Segaser Aug. 1978 101 p refs (Contract W-7405-eng-26)

(ORNL/TM-5758) Avail: NTIS HC A06/MF A01

The technology and estimated costs of subsystems for storing the thermal energy produced by solar collectors are discussed. The systems considered are capable of producing both electricity and space conditioning for a single family detached residence, an apartment complex of 100 units, and a city of 30,000 residents containing both single family residences and apartments. Up to 36 x 10 to the 5th power kWhr of thermal storage capacity is required. In addition to sensible heat and latent heat storage materials, several other media were investigated as potential thermal energy storage materials, including the clathrate and semiclathrate hydrates, various metal hydrides, and heat storage based on inorganic chemical reactions.

## N80-10628# Public Service Electric and Gas Co., Newark, N. J. BATTERY ENERGY STORAGE TEST (BEST) FACILITY Progress Report

Emile A. Hyman Feb. 1979 94 p refs (Contract EY-76-C-02-2857)

(EPRI-EM-1005; PR-1) Avail: NTIS HC A05/MF A01

The activities of the first three phases during the time period March 1, 1976 to July 1, 1978 are presented. Included are a background review, key milestone dates, a description of activities for the three phases (including those associated with the future implementation of the second test bay), and a description of major interactions between the BEST Facility program and the advanced battery development programs.

N80-10629# Mitre Corp., McLean, Va. Metrek Div.
ENVIRONMENTAL DATA FOR ENERGY TECHNOLOGY
POLICY ANALYSIS. VOLUME 1: SUMMARY

Joke Verhoeff, Robert Kline, William L. Parker, Thomas F. Wolfinger, David Adler (CONSAD Research Corp.), Gabriel Sucher (CONSAD Research Corp.), Marc Narkus-Kramer (International Research and Technology, Inc.), Nicklaus E. Leggett (International Research and Technology, Inc.), and Tyrone Williams (International Research and Technology, Inc.) Jan. 1979 106 p refs (Contract EE-77-C-01-6119)

(HCP/EV6119-1) Avail: NTIS HC A06/MF A01

Qualitative and quantitative information on the environmental aspects of different energy technologies is provided. Data are given on nuclear energy, coal, synthetic fuels, oil shale, solar energy, geothermal energy, and hydroelectricity. Each category of technology is broken down into individual technology phases or base units for which environmental effects could reasonably be specified. Each base unit is described in terms of a typical unit or plant size and configuration.

N80-10630# Department of Energy, Washington, D. C. Office of Program Coordinator.

COMPREHENSIVE ENVIRONMENT, HEALTH, AND SAFETY PROGRAM REPORT, FY 1978

Feb. 1979 67 p refs (DOE/EV-0035) Avail: NTIS HC AO4/MF A01

A description is given of the environment, health, and safety research, development, and demonstration activities carried out and in progress. Discussion is presented under the following section headings: a comprehensive environment, health, and safety program: concept and implementation approach; the DOE Office of Environmental - program and selected activities: environmental, health, and safety activities of other DOE offices; and, environmental, health, and safety activities of other Federal agencies. Titles of the four appendixes are: definition of research categories; summary of energy-related environment, health, and safety concerns; environment, health, and safety laws and regulations governing activities of the Department of Energy; and environmental, health, and safety activities of Federal agencies participating in the Federal Inventory.

N80-10631# Department of Energy, Washington, D. C. Div. of Technology Assessments.

### ENVIRONMENTAL READINESS OF EMERGING ENERGY TECHNOLOGIES Summary Report

Jan. 1979 77 p

(DOE/ERD-0022) Avail: NTIS HC A05/MF A01

The principal conclusions of the 21 Environmental Readiness Documents, which assessed 24 technologies are presented. Seven technologies were judged to have minimal environmental constraints. Four are solar technologies. The minimally constrained technologies nevertheless have some potential environmental, health, and safety problems, which will require careful management. Eleven technologies, many of which are high-technology systems with great promise for meeting the Nation's energy needs, were judged to have moderate environmental constraints. The moderately constrained technologies are, with few exceptions, in the predemonstration stage, with demonstration and environmental readiness likely to be achieved by 1980-1990. Six technologies, enhanced oil recovery (micellar polymer), hydrothermal, coal gasification, coal liquefaction, diesel cogeneration, and in situ oil shale, were judged to have significant environmental constraints that will require extensive environmental research and development before they can be widely used or before they can be deployed in some environmentally sensitive areas.

## N80-10633# Brookhaven National Lab., Upton, N. Y. DYNAMICS AND CONTROL: ENERGY CONVERSION, DELIVERY, AND DEMAND ANALYSIS

Kenneth C. Hoffman Apr. 1979 22 p refs Presented at the Workshop on Process and Systems Dyn. Control, Denver, 20 Jun. 1979

(Contract EY-76-C-02-0016)

(BNL-26045; Conf-790636-1) Avail: NTIS HC A02/MF A01 Techniques of mathematical modeling and modern control theory, using microprocessors and advanced measurement and control devices, are extensively applied to components and systems for the conversion and delivery of energy. The projection of energy demands, as a function of economic growth and energy price, is also the subject of active research and analysis. This position paper reviews the current state-of-the-art of analysis in these areas dealing with the planning and operation of energy systems that deliver fuels and electric power. Future research directions are also discussed.

### N80-10634# RAND Corp., Santa Monica, Calif. SOVIET ENERGY BALANCES

Robert Campbell Dec. 1978 115 p refs

(Contract EX-76-C-01-2337)

(RAND/R-2257-DOE) Avail: NTIS HC A06/MF A01

The pattern of energy flows in the Soviet economy contrasts sharply with that in the U.S. and in Western Europe. Today, the flow of energy exports in the USSR amounts to about 12% of Soviet primary energy production in 1975, whereas the U.S. and Western Europe must relay heavily on imports to augment domestic production. The composition of primary energy production in the USSR has changed considerably since 1950, when 80% was accounted for by solid fuel and only 18.5% by hydrocarbons. By 1975, hydrocarbons accounted for 64%, and the share for solid fuels had fallen to 33%. Since most Soviet

energy exports have consisted of oil, the emphasis on solid fuels in consumption in the USSR is still higher than in production: solid fuels now represent 37% of consumption compared with 21% in Western Europe and 19% in the U.S. Within solid fuels, there is heavy reliance on relatively low-grade fuels: lignite, peat, oil shale, and firewood constituted nearly a third of Soviet solid fuel production in 1975.

N80-10635# Washington Scientific Marketing, Inc., Washington, D. C.

### DEPARTMENT OF ENERGY WORKSHOPS ON INDUSTRIAL ENERGY CONSERVATION REPORTING Final Report

[1979] 190 p Workshops held at Washington, D. C., Atlanta, Houston, Tex., Chicago, New York, San Francisco, Nov. 1978 - Feb. 1979

(DOE/CS-1830-T3) Avail: NTIS HC A09/MF A01

A voluntary industrial energy-conservation program was initiated and now includes 50 trade organizations representing over 3,000 companies. Their current reporting system is an effort to respond to the Energy Policy and Conservation Act requirements, as now modified by the National Energy Conservation Policy Act. DOE's Office of Industrial Programs held six workshops in various key locations between November 1978 and February 1979 to enable energy managers to develop ideas and make suggestions that would improve the current and future energy-reporting programs. This report is a summary of the wide range of recommendations that the workshop participants offered as a means of meeting the NECPA requirements and the criticism of the current reporting program. It also reflects industry's views on potential approaches to future reporting.

# N80-10636# RAND Corp., Santa Monica, Calif. RESOLVING ENVIRONMENTAL ISSUES IN ENERGY DEVELOPMENT: ROLES FOR THE DEPARTMENT OF ENERGY AND ITS FIELD OFFICES

Phyllis L. Ellickson and Edward W. Merrow Jan. 1979 62 p refs

(Contract EX-76-C-01-2337)

(RAND/R-2335-DOE) Avail: NTIS HC A04/MF A01

The role of the Department of Energy to resolve environmental conflicts that arise during the implementation of energy projects or programs was studied. The environmental concerns surrounding implementation and feasibility of national energy policies were also studied. The investigation reached the conclusion that the government's most effective role in resolving environmental conflicts and uncertainties is to improve communications among the concerned parties. This role requires flexibility and evenhandedness from the government as well as an understanding of the local conditions and a commitment to appropriate local solutions. Involving local sources at every stage of the environmental impact analysis can reduce the probability of conflicts and make those that do arise more easily resolvable.

## N80-10637# Los Alamos Scientific Lab., N. Mex. SELECTED RESULTS FROM THE TECHNOLOGY ASSESSMENT OF SOLAR ENERGY PROGRAM

Milton C. Krupka and John H. Altseimer 1979 8 p refs Presented at AIAA Terrestrial Energy Systems Conf., Orlando, Fla., 4-6 Jun. 1979

(Contract W-7405-eng-36)

(LA-UR-79-950; Conf-790611-3)

Avail: NTIS

HC A02/MF A01

Emerging solar technologies and selected applications were studied from environmental, institutional and social viewpoints. The impacts resulting from the large scale deployment of decentralized solar technologies were assessed. Emphasis was placed upon technical characterization of the technology and the development of a representative model system for a given application upon which an environmental analysis could be made.

DOE

## N80-10638# Sandia Labs., Albuquerque, N. Mex. ANALYTICAL EVALUATION OF A SOLAR THERMOPHOTOVOLTAIC (TPV) CONVERTER

Michael W. Edenburn 1979 5 p refs Presented at the International Solar Energy Society Meeting, Atlanta, 28 May 1979

(Contract EY-76-C-04-0789)

(SAND-79-0504C; Conf-790541-2)

HC A02/MF A01

Avail: NTIS

A thermophotovoltaic converter was parametrically analyzed for emitter temperature, cell reflectance to radiation with energy below the cell's bandgap energy and concentration ratio requirements. Important conclusions are: (1) an emitter temperature of 2000 K is optimal; (2) a cell reflectance value of 0.98 is required for below bandgap irradiation; (3) a secondary concentrator must be used with a parabolic dish primary; and (4) a mirror quality resulting in a 4 mrad reflection-beam dispersion is required for a 24% conversion efficiency.

N80-10639# Lincoln Lab., Mass. Inst. of Tech., Lexington.
FLYWHEEL ENERGY STORAGE AND CONVERSION
SYSTEM FOR SOLAR PHOTOVOLTAIC APPLICATIONS
Alan R. Millner 1979 9 p Presented at the ASME Gas

Turbine Conf., San Diego, Calif., 12-15 Mar. 1979 (Contract EY-76-C-02-4094)

(COO-4094-31; Conf-7

Conf-790305-6)

Avail: NTIS

HC A02/MF A01

A low-drag, low-power magnetic bearing and a permanent magnet brushless DC motor-generator developed were developed for a satellite flywheel. These will be combined with a terrestrial flywheel and control electronics to make up a flywheel energy storage and conversion system for use in a stand-alone solar photovoltaic residence. Technical and economic performance analyses indicate that, contrary to general thought, a flywheel system will be competitive if not superior to more conventional systems utilizing either present day or advanced batteries. This derives from the ability of the flywheel to perform the functions of dc-to-ac inversion and optimal impedance matching between the PV arrays and the load in addition to providing energy storage. The structural topology, performance data, design parameters, and test measurements of the magnetic bearing and motorgenerator are to be used as well as the flywheel and control electronics. A preliminary discussion of the economic aspects is also included.

N80-10640# Sandia Labs., Albuquerque, N. Mex. GRAPHICAL REPRESENTATION OF TMY SOLAR RADIA-TION AVAILABILITY FOR ONE- AND TWO-AXIS SOLAR COLLECTORS

L. L. Lukens and R. R. Peters May 1979 113 p refs (Contract EY-76-C-04-0789)

(SAND-79-0418) Avail: NTIS HC A06/MF A01

Information about the availability of direct normal radiation to three tracking modes of concentrating collectors (two-axis, east-west, and north-south horizontal axis tracking collectors) for the 26 typical meteorological year stations is presented. The data presented include energy availability, efficiency based on the direct normal radiation availability, and energy distribution.

DOF.

N80-10644# Department of Energy, Washington, D. C. Div. of Legislative Research and Analysis.

SUMMARY OF MAJOR ENERGY LEGISLATION OF THE 95TH CONGRESS

Dec. 1979 158 p

(DOE/TIC-10118) Avail: NTIS HC A08/MF A01

The title, sponsor, synopsis, and legislative status of major energy lesiglation of the 95th Congress includes the following subjects: Alaska lands, Alaska gas transportation, antiboycott legislation, backhauling, Canadian fuel imports, cargo preference/tanker safety, Clean Air Act, coal conversion, coal leasing, coal slurry pipelines, cogeneration, dealer protection, Department of Energy (organization), DOE FY-79 appropriations and authorizations, divestiture, electric energy and utilities, energy conservation, energy impact assistance, Energy Policy Institute, ERDA FY-78 authorizations, ERDA/FEA FY-78 appropriations, enhanced oil recovery, environment and safety, FEA FY-78 authorization, fuels transportation safety, gasohol, geothermal energy, insulation standards, liquefied natural gas, mine safety, National Energy Act, natural gas, nuclear energy, nuclear siting and licensing, nuclear waste management, oil and gas leasing, oil import fees, oil pollution liability, oil shale commercialization, outer continental

shelf, pipeline destruction, Safe Drinking Water Act, solar energy, state energy management program, strip mining, and uranium mill tailings.

N80-10645# Los Alamos Scientific Lab., N. Mex.
ECONOMIC PERFORMANCE OF PASSIVE SOLAR HEAT-ING: A PRELIMINARY ANALYSIS

Fred Roach, Scott Noll (New Mexico Univ., Albuquerque), and Shaul Ben-David 1978 11 p refs Presented at AIAA/ASERC Conf. on Solar Energy, Phoenix, Arizona, 27-29 Nov. 1978 (LA-UR-78-2861; Conf-781133) Avail: NTIS HC A02/MF A01

For the thermal storage wall two types of storage medium-masonry (Trombe) and water are examined. In addition, a night insulation option is included in the thermal storage wall concept, thus giving rise to four alternative passive designs. The economic performance of these alternative designs is evaluated on a state-by-state basis. The architectural design criteria, solar performance characteristics, and the incremental solar cost of each solar design are reviewed. Conventional energy costs are discussed as well as the optimal sizing/feasibility criterion employed in the economic performance analysis. Nationwide feasibility results are reviewed for each alternative design. In addition to contracting the solar systems themselves, the effects of two incentive proposals-the National Energy Act (NEA) income tax credits and low interest loads-upon each design are examined. Major conclusions are summarized for each design.

N80-10646# Notre Dame Univ., Ind. Dept. of Electrical Engineering.

OPTIMAL CONTROL STUDIES OF A SOLAR HEATING SYSTEM

M. Somasundaram, James L. Melsa, and Donald R. Farris 1978 6 p refs Presented to IEEE Midcom on Electron., Dallas, Tex., 13 Dec. 1978

(Contract W-7405-eng-36)

(LA-UR-78-2556; Conf-781208)

Avail: NTIS

HC A02/MF A01

Performance bounds were established for a heating, ventilating and air conditioning system in a solar heated and cooled building. Perfect knowledge of environmental conditions such as ambient temperature, wind velocity and insulation was assumed in order to determine whether prior knowledge of such information can be effectively employed to reduce the amount of auxiliary energy used. The optimal control study is based on a model of the 660000 sq. ft. National Security and Resources Study Center at the Los Alamos Scientific Laboratory.

N80-10650# Sandia Labs., Albuquerque, N. Mex.
DETERMINATION OF THE TECHNICAL AND ECONOMIC
FEASIBILITY OF LUMINESCENT SOLAR CONCENTRATORS
Final Report

C. F. Rapp, N. L. Boling, I. M. Thomas, G. L. Opdycke, R. B. Fechter, J. Chrysochoos, and P. S. Friedman, Mar. 1979,  $2\overline{13}$  prefs.

(Contract EY-76-C-04-0789)

(SAND-79-7005) Avail: NTIS HC A10/MF A01

A somewhat different concentrator configuration was investigated. In the configuration, a thin luminescent film is deposited on all undoped substrate. The luminescence then originates in the film but is trapped within the entire thicker structure. In this study, a large number of fluorescent dopant-host combinations were identified. These were primarily organic but inorganic materials were also included. Absorption spectra, emission spectra and quantum efficiencies were measured on various samples in order to identify the best candidates for the luminescent concentrator device. Six inch by six inch and twelve inch by twelve inch concentrator plates were made which demonstrated approximately 15% effective concentrator efficiencies. The major loss mechanisms responsible for decreases in collector efficiencies were identified and quantitatively evaluated. Efficiency improvement factors of several times appear possible. DOF

N80-10651# Brookhaven National Lab., Upton, N. Y. STATE OF THE ART OF SENSIBLE HEAT STORAGE FOR SOLAR HEAT PUMP SYSTEMS

Philip D. Metz 1979 9 p refs Presented to Solar Energy Storage Options Workshop, San Antonio, Tex., 18 Mar. 1979 (Contract EY-76-C-02-0016)

(BNL-25909; Conf-790328-4) Avail: NTIS HC A02/MF A01 Factors which influence the storage characteristics of solar source heat pump systems are discussed including: solar collection devices, the heat pump, and the utility interface. Some of the characteristics of solar source heat pumps storage are specified such as: temperature range and thermal inertia. The storage options which are discussed are: rock beds, water tanks, ground coupled storage, swimming pools, and ponds.

N80-10652# Colorado State Univ., Fort Collins. Solar Energy Applications Lab.

ANALYSIS OF A LICI OPEN-CYCLE ABSORPTION AIR CONDITIONER WHICH UTILIZES A PACKED BED FOR REGENERATION OF THE ABSORBENT SOLUTION DRIVEN BY SOLAR HEATED AIR Final Report, Dec. 1977 - Sep. 1978

Cecile M. Leboeuf and G. O. G. Loef Oct. 1978 32 p refs (Contract EG-77-S-02-4546)

(COO-4546-1) Avail: NTIS HC A03/MF A01

The technical feasibility of lithium chloride open cycle absorption air conditioner which utilizes solar heated air for reconcentration of the absorbent solution is examined. The use of a packed bed concentrator was described. Operating conditions for a 3-ton residential unit are determined from equilibrium data, conservation of mass and energy, and transfer rate equations. Humidity, air temperature, and packing type are varied to determine their effect on packed bed performance and required packing volumes. The required operating temperatures, humidities, and flow rates are comparable to those which can be obtained from a conventional solar air-heating system during the summer, especially in dry climates. Construction and testing of a packed bed of appropriate design is recommended for validation of the

N80-10653# Colorado State Univ., Fort Collins. Solar Energy Applications Labs.

PRELIMINARY ANALYSIS OF A TOTAL SOLAR HEATING SYSTEM Final Report, Dec. 1977 - Sep. 1978

James A. Leflar, P. Burns, and C. B. Winn Oct. 1978 28 p (Contract EG-77-S-02-4546)

(COO-4546-4) Avail: NTIS HC A03/MF A01

A set of computer simulation programs was developed such that the programs provide a useful design tool for the design of total solar heating systems.

N80-10654# Carrier Corp., Syracuse, N. Y. Energy Systems

DEVELOPMENT OF A HIGH TEMPERATURE SOLAR POWERED WATER CHILLER. VOLUME 3: PHASE 1 Technical Progress Report, 26 Sep. 1977 - 1 Jun. 1978

Richard A. English Jun. 1978 121 p refs (Contract EG-77-C-03-1590)

(SAN-1590-1/3-Vol-3) Avail: NTIS HC A06/MF A01

The conceptual design rationale and resulting design configuration are described as well as estimates of cost and performance. Because the development of the turbocompressor design paralleled the development of the chiller system design, all of the cost and performance data are based on intermediate turbo-compressor performance data, as well as on unoptimized components. Optimized performance was computed. DOF

N80-10655# Alabama Univ., Huntsville. EXPERIMENTAL AND NUMERICAL STUDIES OF LIQUID STORAGE TANK THERMAL STRATIFICATION FOR A SOLAR ENERGY SYSTEM Semiannual Progress Report, 1 Mar. - 31 Aug. 1978

S. T. Wu 29 Sep. 1978 24 p (Contract EG-77-S-02-4479)

(COO-4479-2) Avail: NTIS HC A02/MF A01

The construction of the thermal stratification system was completed and checked out. The details of this check-out procedure are included. The physical dimensions of the facility are shown. This storage tank is a modified septic tank with a capacity of 1500 gallons. This tank is installed with approximately half of the tank below ground. Insulation is 3 in of spray-on foam externally and 1 in internally, protected by a butyl rubber covering. The liquid level in the tank is 44 in.

N80-10656# Colorado State Univ., Fort Collins. Solar Energy

SOLAR GENERATION OF INDUSTRIAL STEAM, INNOVA-TIVE RESEARCH PROGRAM SUBTASK Final Report, Dec.

**1977 - Sep. 1978** Terry Lenz Oct. 1978 10 p refs (Contract EG-77-S-02-4546)

(COO-4546-9) Avail: NTIS HC A02/MF A01

- Comparison of hybrid solar-mechanical (vaporization at low pressure followed by compression), inorganic salt eutectic and polymer latent heat slurry, and solar-thermochemical schemes, pointed to the thermochemical approach as most promising. The condensed-phase reactions were studied. The following classes of reactions meet the set of criteria: reversibly-catalyzed thermal isomerizations, Diels-Alder additions, and esterifications. These particular reaction classes offer significant potential for lower temperature solar-thermochemical systems with condensed phase energy storage.

#### N80-10657# PRC Energy Analysis Co., Los Angeles, Calif. SATELLITE POWER SYSTEM (SPS) PRELIMINARY SOCI-ETAL ASSESSMENT

Charles Bloomquist, A. Daurio, and S. Shotland May 1979 69 p refs

(Contract EG-77-C-01-4024)

(HCP/R4024-01/14) Avail: NTIS HC A04/MF A01

The findings of fourteen papers dealing with SPS societal issues are presented. While numerous societal problems and potential concerns are delineated, no program stoppers were identified. Thus, in so far as the societal ramifications of an SPS are concerned, additional study of the concept is warranted. Societal topics which merit particular attention in the future are delineated. These include rectenna site availability, utility integration, and institutional/international considerations. Study findings that might be used in a comparative assessment of the SPS with alternative energy systems are presented. Methodological considerations for future SPS societal research are also DOF

N80-10658# Honeywell, Inc., Minneapolis, Minn. Energy Resources Center.

COST-EFFECTIVE CONTROL SYSTEMS FOR SOLAR HEATING AND COOLING APPLICATIONS Final Report Jane H. Pejsa, W. W. Bassett, S. A. Wenzler, K. H. Nguyen, and T. J. Olsen Sep. 1978 180 p refs (SAN-1592-1) Avail: NTIS HC A09/MF A01

A methodology is defined and the results are presented to arrive at control recommendations for a variety of climate control system designs, applications and regions, strategies, functions, sensors, actuators, and the controllers themselves. The bulk of the study effort - an attempt to simulate and evaluate system performance for several representative residential and commercial heating and cooling designs and thus to derive improved performance techniques within cost-effective control systems are discussed

N80-10659# International Business Machines Corp., Huntsville,

SOLAR ENERGY SYSTEM PERFORMANCE EVALUATION: A-FRAME INDUSTRIES, SINGLE FAMILY DWELLING, KANEOHE, HAWAII Progress Report, Feb. - Sep. 1978

D. L. Nemetz 1978 29 p refs (Contract EG-77-C-01-4049)

(SOLAR/1010-78/14) Avail: NTIS HC A03/MF A01

The operation of the solar energy system is summarized. This system is designed to provide domestic hot water for a single family dwelling in Kaneohe, Hawaii. Measured system performance is evaluated and measured climatic data are compared with long term average conditions. Performance evaluations of each major subsystem are also presented. DOE

N80-10660# Pennsylvania Univ., Philadelphia. Dept. of Mechanical Engineering and Applied Mechanics.

OPTIMAL INSULATION OF PIPES AND TANKS FOR SOLAR HEATING SYSTEMS

Gerard F. Jones and N. Lior Feb. 1979 75 p refs (Contract EM-78-C-04-5319)

(ALO-5319-2) Avail: NTIS HC A04/MF A01

A compact and time effective insulation design procedure for solar heating system piping and water-filled thermal storage tanks was developed. Recognizing the particular sensitivity of solar systems to cost, the economic aspect of the problem is treated by a comprehensive present-value life-cycle cost analysis. In the development of the method, a numerical sensitivity analysis was performed to determine the relative effects of all relevant independent variables (within their pertinent ranges) on piping and tank heat transfer coefficient values.

N80-10661# Idaho National Engineering Lab., Idaho Falls.
OVERVIEW OF GEOTHERMAL ENERGY IN THE UNITED
STATES

Robert J. Schultz and E. G. DiBello 1 May 1979 14 p refs \* Presented at the Energy Conserv. Symp., San Francisco, 1 May 1979

(Contract EY-76-C-07-1570)

(Conf-790530-1) Avail: NTIS HC A02/MF A01

The development of hydrothermal resources, hot igneous rock resources, and conduction dominated resources is reviewed. Geothermal power generation and direct applications in the U.S. are discussed.

N80-10662# Westinghouse Research and Development Center, Pittsburgh, Pa.

PERFORMANCE MONITORING OF AN OFF-PEAK HEATING AND COOLING SYSTEM UTILIZING THERMAL STORAGE AND SOLAR AUGMENTED HEAT PUMP

W. C. Moreland Apr. 1979 39 p

(EPRI-ER-845) Avail: NTIS HC A03/MF A01

The instrumentation system (including sensors and data logging equipment) used in the demonstration system are described. A general description is also given of the modes of operation of the main heat pump/storage/solar system, the proposed methodology and format for data reduction, and the present status of the program.

N80-10663# Midwest Research Inst., Golden, Colo. SOLAR POND CONCEPTS: OLD AND NEW

T. S. Javadev, Michael Edesess, and Jon Henderson 1979 7 prefs Presented at the 14th Intersoc. Energy Conversion Eng. Conf., Boston, 5-10 Aug. 1979 (Contract EG-77-C-01-4042)

(SERI/TP-35-208; Conf-

HC A02/MF A01

Conf-790803-3) Avail: NT

Different types of solar ponds were considered from the early 1900s to the present. Salty ponds use salt to create a nonconvecting pond. Shallow solar ponds were investigated by Shuman and Willsie in 1906 and 1907 and are currently being studied by Lawrence Livermore Laboratories. Swedish investigators are studying a combination of solar collectors and water storage in a pond-cover configuration. In addition, there are thermoclines created in large bodies of water, as in large reservoirs. The various types of solar ponds are surveyed and the best of the ideas are combined to synthesize new concepts. A new solar pond concept is presented which combines the good features of convecting and nonconvecting (salty) ponds.

N80-10664# California Univ., Livermore. Lawrence Livermore

EFFECT OF MECHANICAL ENERGY STORAGE SYSTEMS ON THE CHARACTERISTICS OF ELECTRIC VEHICLES

Martin W. Schwartz 14 May 1979 7 p Presented at the 14th Intersoc. Energy Conversion Conf., Boston, 5-10 Aug. 1979; Sponsored by the Am. Chem. Soc.

(Contract W-7405-eng-48) (UCRL-82710: Conf-790803-17) HC A02/MF A01

Avail:

NTIS

Batteries for electric vehicle propulsion were investigated to see if effective trade-offs between short term peak power capability and energy storage capacity are possible. It was found that batteries in combination with a mechanical energy storage device can optimize both power and range capability of an electric vehicle. Equations were derived for determining the vehicle mass fraction of the mechanical energy storage system that is required to achieve a vehicle mass saving or increase in range. The extent to which mechanical energy storage systems can improve electric vehicle performance was found to depend upon the battery type and the vehicle power/mass requirements. DOE

N80-10665# Department of Energy, Washington, D. C. Office of Conservation and Solar Applications.

WASTE HEAT UTILIZATION: PROCEEDINGS OF 1978 ENGINEERING FOUNDATION CONFERENCE

Apr. 1979 327 p refs Conf. held at Henniker, N. H., 13-18 Aug. 1978

(CONF-7808102) Avail: NTIS HC A15/MF A01

Fifteen papers are presented containing engineering concepts, improved methods, and/or equipment descriptions pertaining to waste heat utilization.

R.E.S.

N80-10667# New Mexico Univ., Albuquerque.

WASTE UTILIZATION AS AN ENERGY SOURCE. CITATIONS FROM THE INTERNATIONAL AEROSPACE ABSTRACTS DATA BASE Progress Report, 1974 - Jul. 1979 Gerald F. Zollars Jul. 1979 55 p (NTIS/PS-79/0765/2) Avail: NTIS HC \$28.00/MF \$28.00 CSCI 21D

Articles from the international literature concerning the processing of solid and organic wastes for use as an energy source are cited. Industrial agricultural, and residential wastes are considered as sources of both gaseous and liquid fuels such as methane, methanol, ethanol, and synthane. This bibliography contains 219 entries.

N80-10668#. New Mexico Univ., Albuquerque. Technology Application Center.

AIRCRAFT FUEL. CITATIONS FROM THE INTERNATIONAL AEROSPACE ABSTRACTS DATA BASE Progress Report, 1974 - Jul. 1979

Gerald F. Zollars Jul. 1979 43 p Sponsored in part by NTIS,

(NTIS/PS-79/0764/5) Avail: NTIS HC \$28.00/MF \$28.00 CSCL 10A

These 160 citations concern means to conserve fuel in airline operations. Articles dealing with aircraft design, fuels, engine design, propulsion efficiency, and operating procedures which conserve fuel are included.

N80-10674# National Technical Information Service, Springfield, Va.

MICROWAVE HEATING: INDUSTRIAL APPLICATIONS. CITATIONS FROM THE ENGINEERING DATA BASE Progress Report, 1970 - May 1979

William E. Reed Jul. 1979 209 p Supersedes NTIS/PS-78/ 0572: NTIS/PS-77/0515; NTIS/PS-76/0447 (NTIS/PS-79/0632/4; NTIS/PS-78/0572; NTIS/PS-77/0515; NTIS/PS-76/0447) Avail: NTIS HC \$28.00/MF \$28.00 CSCL

Industrialized uses of microwave heating are covered in these citations of worldwide research. The topics include industrial heating and drying for processes such as paper drying, vulcanization, and textile processing. Equipment design and safety are also cited. This updated bibliography contains 203 abstracts, 29 of which are new entries to the previous edition. GRA

N80-10677# National Academy of Sciences - National Research Council, Washington, D. C. Committee on Nuclear and Alternative Energy Systems.

#### GEOTHERMAL RESOURCES AND TECHNOLOGY IN THE UNITED STATES

Feb. 1979 65 p refs

(PB-296623/2; ISBN-0-309-02874-4) NTIS Avail: MF A01:HC National Academy of Science, Washington, D. C., \$5.50 CSCL 10B

The potentials and problems of geothermal energy are assessed with particular focus on current obstacles in the development of the geothermal industry.

N80-10678# General Accounting Office, Washington, D. C. Energy and Minerals Div.

#### ENERGY SAVING STRATEGIES FOR FEDERAL PROCURE-MENT

19 Jun. 1979 14 p

(PB-296969/9; EMD-79-68) Avail: NTIS HC A02/MF A01 CSCL 10A

Federal energy conservation measures are evaluated, and what Federal agencies have done to develop and implement procurement techniques which result in reduced energy consump-

N80-10679# General Accounting Office, Washington, D. C. Energy and Minerals Div.

#### NATURAL GAS RESERVES ESTIMATES: A GOOD FEDERAL PROGRAM EMERGING, BUT PROBLEMS AND DUPLICA-TIONS PERSIST

15 Jun. 1979 85 p

(PB-296628/2; EMD-78-68) Avail: NTIS HC A05/MF A01 CSCL 10A

Improvements needed in the Government's efforts to estimate the Nation's natural gas reserves are discussed. GRA

N80-10681# National Technical Information Service, Springfield,

#### LEAD BATTERIES, VOLUME 2. CITATIONS FROM THE ENGINEERING INDEX DATA BASE Progress Report, 1977 - Jul. 1979

Diane M. Cavagnaro Aug. 1979 121 p refs Supercedes NTIS/PS-78/0690; NTIS/PS-77/0634; NTIS/PS-76-0550 (NTIS/PS-77/0634; NTIS/PS-76/0550; NTIS/PS-79/0782/7; NTIS/PS-78/0690) Avail: NTIS HC \$28.00/MF \$28.00 CSCL 10C

Worldwide research on lead battery components, charging, corrosion, and testing is cited. The majority of studies concern battery use in electric vehicles. Studies on lead recovery from battery scrap and air pollution at battery factories are also included. This updated bibliography contains 115 abstracts, 59 of which are new entries to the previous edition. GRA

N80-10683# Advisory Group for Aerospace Research and Development, Neuilly-Sur-Seine (France).

#### FLUID DYNAMIC ASPECTS OF WIND ENERGY CONVER-SION

O. DeVries (Natl. Aerospace Lab., Amsterdam) Jul. 1979 145 p refs

(AGARD-AG-243; ISBN-92-835-1326-6) Avail: NTIS HC A07/MF A01

The theory of horizontal axis and vertical axis wind driven turbines is discussed. Inhomogeneous flow, turbulence effects, turbine control, wake interference effects, and wind concentrator concepts are surveyed. K.L.

N80-10688# California Univ., Livermore. Lawrence Livermore

#### THE IMPACT OF LNG SPILLS ON THE ENVIRONMENT: A COMPARISON OF DISPERSION MODELS AND EXPERI-MENTAL DATA

B. R. Bowman, S. B. Sutton, and W. J. Comfort 9 Jan. 1979 6 p refs Presented at the 19th Ann. Meeting of the Inst. of Environ. Sci., Seattle, 29 Apr. - 2 May 1979

(Contract W-7405-eng-48)

Conf-790445-1) Avail: NTIS (UCRL-81812:

HC A02/MF A01

Two dispersion model calculations are compared with experimental data collected for 5-cubic-meter spills of liquefied natural gas (LNG) on water. The models are a Gaussian dispersion model, which includes models for vapor generation and gravity spread, and a three dimensional solution of the compressible turbulent transient Navier-Stokes equations and associated equations for conservation of species and energy. The latter model was also run in a two dimensional mode to evaluate the utility of two dimensional calculations. These calculations are compared to data collected in LNG spill and dispersion experiments, which measured the concentration of hydrocarbons at several downwind locations. The adequacy of the models and differences between them are discussed. Areas for model improvement are indicat-

#### N80-10689# Computer Genetics Corp., Wakefield, Mass. REMOTE SENSING OF LNG SPILL VAPOR DISPERSION USING RAMAN LIDAR

D. A. Leonard and B. Caputo Mar. 1979 121 p. (Contract W-7405-eng-48)

(UCRL-13984) Avail: NTIS HC A06/MF A01

A field experiment which evaluated the remote sensing of hydrocarbon concentrations in the dispersing cloud of gas produced by a spill of LNG using a Raman LIDAR technique is described. The background and objectives of the effort; a description of the lidar equipment; a description of the test site and the test scenario; and sections on data analysis and recommendations are included. DOE

#### N80-10692# Decision Focus, Inc., Palo Alto, Calif. PROPOSED RESEARCH PLANNING FORMAT FOR THE ENVIRONMENTAL ASSESSMENT DEPARTMENT Report

D. Cohan and D. W. North Mar. 1979 127 p refs Sponsored by Electric Power Research Inst.

(EPRI-EA-1018; TPS-78-798) Avail: NTIS HC A07/MF A01 Issues of concern to Environmental Assessment Department (EAD) clients are reviewed, and alternative roles for EAD research are defined. The proposed planning format describes explicitly the steps in the planning and research process: identifying broad needs of industry and society: defining specific forcing issues; detailing research needs and objectives; developing research programs and projects; and producing the research results and integrated products that form the EPRI response to the original needs. An illustrative application of the planning format to the current EAD research program is included. DOE

#### N80-10693# Oak Ridge National Lab., Tenn. Energy Div. SOCIOECONOMIC DATA REQUIREMENTS FOR ENVIRON-MENTAL ASSESSMENT: COAL GASIFICATION AND LIQUEFACTION PROJECTS

R. Steven Konkel 1978 28 p refs Presented at the Conf. on Net Energy Anal. and Energy Modeling, Colorado Springs, 21 Aug. 1978

(Contract W-7405-eng-26)

(CONF-780843-5) Avail: NTIS HC A03/MF A01

The development of data bases and monitoring programs will allow (1) identification of baseline conditions and existing levels of stress in the environment; (2) prediction of the potential impacts of construction, operation, and decommissioning of a coal conversion complex at a specific site; (3) determination of whether these or unanticipated impacts actually occur during these periods; and (4) evaluation of the effectiveness of mitigation measures designed to lessen adverse impacts on the environment. Socioeconomic data requirements include characterization of land uses, land-use management alternatives, demography and employment, economic and fiscal indicators, and infrastructure capacities for site-specific study areas. The monitoring program should be designed to identify appropriate study areas, and incorporate input from citizen groups and local planning officials. Author

N80-10694# Oak Ridge National Lab., Tenn. Environmental Sciences Div.

ENVIRONMENTAL IMPLICATIONS FOR GEOTHERMAL **ENERGY DEVELOPMENT** 

Robert B. Craig and Glenn W. Suter, II 1979 8 p refs Presented to the Inst. of Environ. Sci., Seattle, Wash., 29 Apr. 1979

(Contract W-7405-eng-26)

(CONF-790445-3) Avail: NTIS HC A02/MF A01

The nature of hydrothermal, hot dry resources and the constraints that site characteristics place on their development are discussed. Effects on cultural, aesthetic, and wildlife resources are considered.

N80-10700# Water Purification Associates, Cambridge, Mass. WASTEWATER TREATMENT IN COAL CONVERSION Final Report, Oct. 1976 - Jan. 1979

R. E. Hicks, D. J. Goldstein, F. B. Seufert, and I. W. Wei Jun. 1979 287 p. refs

(Contract EPA-68-03-2207)

(PB-297587/8; EPA-600/7-89-133)

HC A13/MF A01 CSCL 07A

Avail: NTIS

Water treatment control technology specific to fuel conversion plant sites in the western U.S. is described. Most plants converting coal to other fuels use a large quantity of clean water (as stream) and put out a large quantity of dirty water that is condensed when the products from the coal reactor are cooled. Procedures for removing phenolic compounds are discussed: they include distillation, extraction, and adsorption. Design equations, step-by-step design procedures, and calculations for a typical unit are included along with physical data that are required for design.

N80-10701# Mitre Corp., McLean, Va. Metrek Div.
HEALTH AND ENVIROMENTAL EFFECTS OF COAL
GASIFICATION AND LIQUEFACTION TECHNOLOGIES: A
WORKSHOP SUMMARY AND PANEL REPORTS Final
Report

Richard Brown, ed. and Alice Witter, ed. May 1979 374 p Workshop held at Leesburg, Va., Aug. 1978

(Contract DE-AC01-79EV-10018)

(PB-297618/1: MTR-79W00137: DOE/HEW/EPA-03) Avail: NTIS HC A16/MF A01 CSCL 06F

Responses to President Carter's directive to identify health and environmental problems associated with advanced energy technologies are presented. The highlights of the issues and the detailed information requirements identified by panels of a workshop held in Leesburg, Virginia in August 1978 to address the health and environmental effects of coal gasification and liquefaction technologies are presented. The purposes of the workshop were to: (1) assemble multidisciplines of biomedical and environmental scientists to address current developments in these technologies. (2) review and identify specific health and environmental issues and problems associated with their development and commercialization, and (3) consider research strategies required to address them and to identify requisite information needs for resolving uncertainties of assessing the relevant impacts of coal gasification and liquefaction technologies. The six panels of the workshop were: occupational and public health and safety; air quality; water quality, water quantity, and aquatic ecology; terrestrial effects; ambient measurement and monitoring; and source characterization. Panel reports containing specific information on environmental and health effects, information requirements, and detailed research statements are included in this report. GRA

N80-10709\* National Aeronautics and Space Administration. Pasadena Office, Calif.

BOREHOLE GEOLOGICAL ASSESSMENT Patent

William H. Spuck, III, inventor (to NASA) (JPL) Issued 11 Sep. 1979 10 p Filed 4 May 1978 Supersedes N79-19521 (17 - 10, p 1306) Sponsored by NASA

(NASA-Case-NPO-14231-1; US-Patent-4,167,111;

US-Patent-Class-73-155;

US-Patent-Class-175-78) Avail: US Patent and Trademark Office CSCL 08G

A method and apparatus are discussed for performing geological assessments of a formation located along a borehole, and a boring tool that bores a pair of holes into the walls of the borehole and into the surrounding strata along with a pair of probes which are installed in the holes. One of the probes applies an input such as a current or pressured fluid, and the other probe senses a corresponding input which it receives from the strata. Official Gazette of the U.S. Patent and Trademark Office

N80-10918# Argonne National Lab., III.

POWER SUPPLY REQUIREMENTS FOR A TOKAMAK FUSION REACTOR

Jeffrey N. Brooks and Robert L. Kustom Feb. 1979 63 p refs

(Contract W-31-109-eng-38)

(ANL/FPP/TM-119) Avail: NTIS HC A04/MF A01

A system approach combining models of the reactor and poloidal coil set, plasma burn cycle and MHD calculations, and power supply characteristics and cost data was used to determine power supply requirements for a 7-M major radius commercial reactor. A conventional system using an MGF set and solid-state rectifier/inverter power supplies was studied in addition to systems using a homopolar generator, superconducting energy storage inductor, and dump resistors. The requirements and cost of the power supplies depend on several factors but most critically on the ohmic heating ramp time used for startup. Long ramp times (approximately > 85) seems to be feasible, from the standpoint of resistive voltsecond losses, and would appear to make conventional systems quite competitive with nonconventional ones, which require further research and development.

N80-10922# Brookhaven National Lab., Upton, N. Y. Dept. of Nuclear Energy.

ONE- AND TWO-DIMENSIONAL HEATING ANALYSES OF FUSION SYNFUEL BLANKETS

J. S. K. Tsang, O. W. Lazareth, and J. R. Powell 1979 5 prefs Presented to the Am. Nucl. Soc., Atlanta, Ga. 3-8 Jun. 1979

(Contract EY-76-C-02-0016)

(BNL-NUREG-25635; Conf-790602-14) HC A02/MF A01

Avail: NTIS

Neutronics and heating analyses were performed on a fusion reactor blanket featuring synthetic fuel production. In this two temperature region blanket design, the structural shell is stainless steel. The interior of the module is a packed ball of high temperature ceramic material. The low temperature shell and the high temperature ceramic interior are separately cooled. Process steam (approximately 1500 C) is then produced in the ceramic core for the producion of H2 and H2-based synthetic fuels by a high temperature electrolysis (HTE) process.

N80-10964# Committee on Commerce, Science, and Transportation (U. S. Senate).

NASA AUTHORIZATION FOR FISCAL YEAR 1980. PART 4: INDEX

Washington GPO 1979 122 p Hearings on S. 357 before the Comm. on Commerce, Sci., and Transportation, 96th Congr., 1st Sess., 1979

(GPO-51-336) Avail: Comm. on Commerce, Sci., and Transportation

Indexes to appropiations for space research and development, construction of facilities, and research and program management.

A.W.H.

N80-10965# Unified Industries, Inc., Alexandria, Va.
MANAGERIAL PLAN: EXECUTIVE ORDER 12003 AND THE
NATIONAL ENERGY ACT

Dec. 1978 96 p (Contract EM-77-C-01-8962)

(DOE/TIC-10067) Avail: NTIS HC A05/MF A01

A management tool is provided to assist in planning and developing the Federal Energy-Conservation Program which requires that, by 1985. Executive Branch agencies that own or will own buildings reduce building energy-consumption substantially below 1975 levels. The order also requires that all agencies of the Branch conduct programs designed to reduce energy consumption in general operations of the agency. The program

master plan defines goals, objectives strategies, and milestones within a structure that describes the framework, elements, phases, and roles of the agencies. Data requirements for the planning, implementing, evaluating, and reporting functional requirements of the executive order are included with an analysis of the DOE organizational management and resource requirements.

N80-10970# California Univ., Livermore. Lawrence Livermore Lab.

#### ENERGY STORAGE SYSTEMS FOR AUTOMOBILE PROPUL-SION, 1978 STUDY. 1: OVERVIEW AND FINDINGS

C. J. Berhrim, C. J. Anderson, H. Bomelburg (Battelle Pacific Northwest Labs.), M. Farahat (Argonne National Lab.), H. C. Forsberg, C. L. Hudson (Interplan Corp.), B. C. Kullman (Cambridge Systematics, Inc., Mass.), L. G. OConnell, G. Strickland (Brookhaven National Lab.), and W. J. Walsh 15 Dec. 1978 57 p refs

(Contract W-7405-eng-48)

(UCRL-52553-Vol-1) Avail: NTIS HC A04/MF A01

Technical and cost analyses were made of electrochemical, mechanical, chemical, and thermal storage devices and power systems which are likely to provide credible alternatives to current and future internal combustion engine propulsion systems between now and the year 2000. These devices were used in conceptual designs of various energy storage propulsion systems. Their resultant performances and costs were calculated and compared against each other and against a baseline ICE vehicle system conceptually designed to provide the same performance. Aspects of concern were the effect on all-battery electric systems of optimizing batteries for the specific peak power and specific energy relationship, the effect on the relative results of using highly optimistic (10% confidence level) component characteristics; the national energy impact of the future introduction of energy storage automobiles; and the effect on prior results and conclusions of R and D achievements in the past year.

#### N80-10975# National Bureau of Standards, Washington, D. C. DIMENSIONS/NBS, VOLUME 63, NO. 6, JUNE 1979 Monthly Report

Jun. 1979 37 p

(PB-297836/9; NBS/DIM-63/6)

HC A03/MF A01 CSCL 14B

Avail: NTIS

Contents: Cities in Renaissance; Keeping Tabs on Toxicity; Wanted-Better Energy Ideas; NBS Publishes Updated Survey of State Solar Energy Legislation; Characterizing South Pole Aerosols with the Raman Microprobe; Conferences; Publications; News Briefs

N80-11053\*# National Aeronautics and Space Administration.

### Langley Research Center, Hampton, Va. MULTIROLE CARGO AIRCRAFT OPTIONS AND CONFIG-URATIONS

D. William Conner and John C. Vaughan, III (USAF) Oct. 1979 15 p refs Presented at 1979 SAE Aerospace Meeting, 3-9 Dec. 1979

(NASA-TM-80177) Avail: NTIS HC A02/MF A01 CSCL

A future requirements and advanced market evaluation study indicates derivatives of current wide-body aircraft, using 1980 advanced technology, would be economically attractive through 2008, but new dedicated airfreighters incorporating 1990 technology, would offer little or no economic incentive. They would be economically attractive for all payload sizes, however, if RD and T costs could be shared in a joint civil/military arrangement. For the 1994-2008 cargo market, option studies indicate Mach 0.7 propfans would be economically attractive in trip cost, aircraft price and airline ROI. Spanloaders would have an even lower price and higher ROI but would have a relatively high trip cost because of aerodynamic inefficiencies. Dedicated airfreighters using propfans at Mach 0.8 cruise, laminar flow control, or cryofuels, would not provide any great economic benefits. Air cushion landing gear configurations are identified as an option for avoiding runway constraints on airport requirements and/or operational constraints are noted. Author

N80-11066# National Aerospace Lab., Tokyo (Japan). V/STOL

#### FUEL MINIMAL TAKE-OFF PATH OF JET LIFT VTOL AIRCRAFT, LOG NO. C3558

Hiroshi Nishimura 7 Aug. 1979 40 p refs Backup document for AIAA synoptic scheduled for publication in Journal of Aircraft on Feb. 1980

Avail: NTIS HC A03/MF A01

The fuel minimal take-off path analysis for jet lift type VTOL aircraft is presented. The study is made of two basic configurations, namely, separate type and swivel type. The fuel minimal take-off path problems of the two configurations are analyzed as nonlinear systems with the controls constrained by their magnitude. The solutions for both types are generally composed of two or three discontinuous segments connected by switching points. For the separate type, the singular part is analytically deterministic and unique, and plays a decisive role; but for the swivel type, the singular part is not unique. Two methods of solution involving different handling of singular parts are considered. Author

N80-11121\* Boeing Aerospace Co., Seattle, Wash. Ballistic Missiles and Space Div.

#### SOLAR POWER SATELLITE SYSTEM DEFINITION STUDY, PHASE 2. Interim Report

9 Jul. 1979 265 p

(Contract NAS9-15636)

(NASA-CR-160377; D180-25381-1) NTIS Avail: HC A12/MF A01 CSCL 22B

A program plan for the Solar Power Satellite Program is presented. The plan includes research, development, and evaluation phase, engineering and development and cost verification phase, prototype construction, and commercialization. Cost estimates and task requirements are given for the following technology areas: (1) solar arrays; (2) thermal engines and thermal systems; (3) power transmission (to earth); (4) large space structures; (5) materials technology; (6) system control; (7) space construction; (8) space transportation; (9) power distribution, and space environment effects.

N80-11122\*# Boeing Aerospace Co., Seattle, Wash. **Ballistic** Missiles and Space Div.

#### SOLAR POWER SATELLITE SYSTEM DEFINITION STUDY. PHASE 2. PART 1: MIDTERM BRIEFING

27 Jun. 1979 543 p

(Contract NAS9-15636)

(NASA-CR-160378; D180-25402-1) Avail: NTIS HC A22/MF A01 CSCL 22B

An overview of the program plan for the Solar Power Satellite Program is given. Progress in the microwave power transmission system is reported. A description is given of the following: (1) launch and recovery site facilities, systems and operations; (2) cargo packaging; (3) earth-to-LEO cargo transportation operations; (4) LEO-to-GEO cargo transportation operations; (5) personnel transportation operations; (6) space vehicles in-space maintenance operations; and (7) SPS maintenance systems and operations. Other topics discussed include GEO base operations, satellite construction operations, intra-base logistics, and GEO base definition. A research and program plan is presented along with cost estimates. J.M.S.

#### N80-11168# Oak Ridge National Lab., Tenn. CHEMICAL STRUCTURES AND REACTIVITIES OF COAL AS AN ORGANIC NATURAL PRODUCT

Clair J. Collins, H. P. Hombach, B. M. Benjamin, W. H. Roark, B. Maxwell, and V. F. Raaen 1979 6 p refs Presented at 177th ACS Natl. Meeting, Honolulu, Hawaii, 1 Apr. 1979 (Contract W-7405-eng-26)

(CONF-790415-25) Avail: NTIS HC A02/MF A01

Some chemical reactions involved in coal liquefaction were studied using carbon 14 labelled compounds and nuclear magnetic resonance. It is concluded that the role of tetralin during coal conversion is (1) to act as a dispersion vehicle; (2) to supply hydrogen radicals, when needed, to trap coal radicals; and (3) in a very minor way to undergo intermolecular reaction with the coal through making and breaking of C-C (and possibly other) bonds. As a result of other experiments it is concluded that to the methods previously employed for breaking bonds in coal molecules and thereby lowering their molecular weights, must now be added the use of solvated-electrons for breaking -CH2-CH2-linkages. A possible mechanism for the cleavage of bibenzyl (used as a model compound for coal) is given. DOE

N80-11179# IEA Coal Research, London (England). COMBUSTION OF LOW GRADE COAL

G. F. Morrison Jun. 1978 90 p refs (ICTIS/TR-02; ISBN-92-9029-016-1) HC A05/MF A01

NTIS

A technical review of the literature is presented in order to assess the increasing extent to which lignite, brown coal, peat, and bituminous shale are combusted for power generation. Although the most common form of combustion in use today, the firing of pulverized low grade coal has presented major operational problems of erosion, corrosion, and fouling of heat exchange equipment. Recent developments in the design of pulverized-coal fired stations are discussed. Fluidized bed combustion has the potential to overcome many of these problems and a brief history of the development of this form of combustion and an assessment of current research is included. One important parameter in the future development of low grade coal combustion is the ability of power stations to comply with national emission standards. The influence of combustion mode on the emission of SO2, NO, and particulates is reviewed. Author (FSA)

N80-11180# IEA Coal Research, London (England). TRACE ELEMENTS FROM COAL COMBUSTION: ATMOS-PHERIC EMISSIONS

M. Y. Lim May 1979 58 p refs (ICTIS/TR-05; ISBN-92-9029-024-2) NTIS HC A04/MF A01

The literature relating to trace elements in coal combustion is reviewed from the point of view of atmospheric pollution. Some data on trace element concentration in coal are given and comparisons are made with atmospheric emissions from other sources. Environmental effects and potential health hazards are discussed. Radioactive emissions and trace element accumulation around power plants are also reviewed and types of equipment used for particulate control in power plants are summarized. It is concluded that the importance of coal combustion as a pollutant source depends on what type of regulations are established for emission control and on how well power plants comply with these regulations. Author (ESA)

N80-11238\*# Union Carbide Corp., Tonawanda, N.Y Linde

ECONOMICS OF HYDROGEN PRODUCTION AND LIQUE-**FACTION UPDATED TO 1980** 

C. R. Baker Nov. 1979 41 p refs (Contract NAS1-14698)

(NASA-CR-159163) Avail: NTIS HC A03/MF A01 CSCL 21D

Revised costs for generating and liquefying hydrogen in mid-1980 are presented. Plant investments were treated as straight-forward escalations resulting from inflation. Operating costs, however, were derived in terms of the unit cost of coal, fuel gas and electrical energy to permit the determination of the influence of these parameters on the cost of liquid hydrogen. Inflationary influence was recognized by requiring a 15% discounted rate of return on investment for Discounted Cash Flow financing analysis, up from 12% previously. Utility financing was revised to require an 11% interest rate on debt. The scope of operation of the hydrogen plant was revised from previous studies to include only the hydrogen generation and liquefaction facilities. On-site fuel gas and power generation, originally a part of the plant complex, was eliminated. Fuel gas and power are now treated as purchased utilities. Costs for on-site generation of fuel gas however, are included.

N80-11245# California Univ., Livermore. Lawrence Livermore

LABORATORY COAL GASIFIER FACILITY

W. R. Aiman, C. B. Thorsness, and R. J. Cena 16 Apr. 1979 35 p refs Presented at Spring Meeting on Western States Section, and the Combustion Inst., Provo, Utah, 23 Apr. 1979 (Contract W-7405-eng-48) (UCRL-82602; Conf-790434-3) NTIS

HC A03/MF A01

Avail:

A laboratory coal gasifier test facility consists of systems for metering gases into an experimental gasifier, condensing the tar and water out of the product gases and flaring them, sampling and analyzing the product gases, and monitoring the gasifier during an experiment. The major items of equipment include: a mass spectrometer, a process gas chromatograph, a minicomputer, and the experimental coal gasifiers--currently a 1.5 m fixed-bed gasifier and a 0.9 m bore-hole gasifier. This facility is described and the use of the facility in validating software and hardware for use in field experiments are discussed. The results of an experiment with the 1.5 m fixed-bed gasifier are described. Temperature profiles down the centerline of the reactor at various times during the experiment are discussed. Product gas compositions are discussed.

N80-11246# Oak Ridge National Lab. Tenn ECONOMICS OF GASOLINE PRODUCTION FROM UNDER-GROUND COAL GASIFICATION VIA MOBIL-M PROCESS M. S. Edwards, W. C. Ulrich, and R. Salmon 1979 36 p refs Presented at AICE Meeting, Houston, Tex., 1 Apr. 1979 (Contract W-7405-eng-26)

(CONF-790405-12) Avail: NTIS HC A03/MF A01

A conceptual process design and cost estimate is presented for a facility producing approximately 15,000 barrels per day of M-gasoline via methanol from synthesis gas generated by gasification of coal in situ. The design was based on experimental data obtained at the Laramie Energy Technology Center on the linked vertical well in situ coal gasification process. In-place coal consumption is 756 Mg/h (20,000 tons/day), based on a subbituminous Wyoming coal. The capital investment was estimated to be \$535 million in first quarter 1978 dollars. The product price of M-gasoline (including mixed butane LPG) is about \$240/cubed m (\$0.90/gas) at the plant gate. Calculated overall thermal efficiency for the facility was 22%, based on in-place coal.

N80-11248# Metal Properties Council, Inc., New York. PROGRAM TO DISCOVER MATERIALS SUITABLE FOR SERVICE UNDER HOSTILE CONDITIONS OBTAINING IN EQUIPMENT FOR THE GASIFICATION OF COAL AND OTHER SOLID FUELS Quarterly Progress Report, 1 Apr. 1978 - 30 Jun. 1978

A. O. Schaefer, ed. DOE 16 Oct. 1978 238 p refs (Contract EX-76-C-01-1784)

(FE-1784-42) Avail: NTIS HC A11/MF A01

Progress is reported in screening materials for use in such plants with corrosive environments and in providing useful corrosion data as well as reliable information on other properties needed for the design, construction, and operation of such plants. The program involves high temperature corrosion studies involving low concentration of H2S, exposure of metal coupons and refractories in coal gasification pilot plants, aqueous corrosion erosion and corrosion testing, and measurements of the mechanical and physical properties of materials. DOE

N80-11249# Institute of Gas Technology, Chicago, III. RESEARCH AND DEVELOPMENT OF RAPID HYDROGENA-TION FOR COAL CONVERSION TO SYNTHETIC MOTOR FUELS (RISER CRACKING OF COAL) Quarterly Report, 1 Apr. - 30 Jun. 1978

D. A. Duncan, J. L. Beeson, and R. D. Oberle Sep. 1978 25 p refs

(Contract EX-76-C-01-2307)

(FE-2307-38; QR-1) Avail: NTIS HC A02/MF A01

Runs were made in the bench-scale unit to investigate hydrocarbon yields from North Dakota lignite at operating pressures of 500 and 1000 psig. The base carbon conversions were reduced to approximately 26 and 33%, and hydrocarbon liquids yields were reduced to 6.4 and 9.2 grams per 100 grams of feed carbon, respectively. These values are considerably lower than those obtained from North Dakota lignite in bench-scale

unit operations at 2000 psig. At that pressure, base carbon conversions were approximately 50%, and hydrocarbon liquids yields were 18 grams per 100 grams of feed carbon. Runs were also made with Illinois No. 6 bituminous coal [free-swelling-index (FSI)=4-1/2]. To avoid plugging the reactor, the coal was mixed with fine silica sand at levels of 10%, 20%, and 30% (by weight) coal with sand. The bench-scale unit was operated using an upsweeping temperature profile at coil outlet temperatures of 1450 and 1500 F and a system outlet pressure of 2000 psig. Runs with the 10% and 20% (by weight) coal were successful.

N80-11250# Electric Power Research Inst., Palo Alto, Calif. BIOFUELS: A SURVEY

John R. Benemann Jun. 1978 96 p refs Sponsored by EPRI

(EPRI-ER-746-SR) Avail: NTIS HC A05/MF A01

Photosynthesis, plant productivity, waste and residue resources, 'energy farming,' processes for using biomass directly or converting it to fuels, and overall economics are discussed. Applications by U.S. industries and utilities are emphasized and current U.S. research and development programs presented. With foreseeable technologies and economics, approximately 5% of the fossil fuels now consumed in the United States could presently be replaced by available forestry, agricultural, and municipal wastes and residues.

N80-11251# Department of Energy, Washington, D. C. Energy Policy Office.

NATIONAL GAS SURVEY REPORT TO THE FEDERAL ENERGY REGULATORY COMMISSION BY THE SUPPLY-TECHNICAL ADVISORY TASK FORCE ON NONCONVEN-TIONAL NATURAL GAS RESOURCES

Jun. 1978 116 p refs

(DOE/FERC-0010) Avail: NTIS HC A06/MF A01

An analysis of the future energy situation in the U.S. with emphasis on the natural gas industry is presented. The analysis includes chapters on historical research efforts, industry criteria for commercialization of coal bed gas, technology for recovering methane from coal beds, identification of problems, legal concerns, and environmental considerations.

N80-11254# New York City Resource Recovery Task Force,

METHANE RECOVERY FROM SANITARY LANDFILLS; GAS RECOVERY SYSTEM INSTALLATION AND TESTING Interim Report

Dec. 1978 45 p refs Prepared in cooperation with Brooklyn Union Gas Co., N. Y. and Wegman Co., Inc., Buffalo, N. Y. (PB-296622/4; NYSERDA-78/18) Avail: NTIS HC A03/MF A01 CSCL 21D

A methane gas recovery program to mine this clean energy form from the municipal solid wastes deposited at the New York Fresh Kills Landfill in Staten Island, New York is described. Optics covered include the results of a six-week test program subsequent modifications made to the gas system, and the objectives and plans for the phase 3 landfill gas utilization program.

N80-11255# Mitre Corp., McLean, Va. Metrek Div.
ASSESSMENT OF LONG TERM RESEARCH NEEDS FOR
COAL-GASIFICATION TECHNOLOGIES Final Report

Apr. 1979 201 p

(Contract ER-78-C-01063)

(PB-297853/4; MTR-79W00160) HC A10/MF A01 CSCL 07A Avail: NTIS

An assessment of research areas that affect long term development of coal gasification technologies is presented. Research recommendations and findings are discussed. Included are: an analysis of the major application areas for coal gasification technologies; discussion of the status and needs of the principal systems according to reactor type (fixed bed, fluidized bed, etc.): reports from site visits and communications with technology developers; and in-depth assessment of basic research needs in the critical areas of scaling and modeling, materials, effluent

characterization, diagnosis and instrumentation, coal chemistry, catalytic chemistry, gas particle systems, and unit operations.

GRA

N80-11259# Army Construction Engineering Research Lab., Champaign, III.

THE BUILDING LOADS ANALYSIS SYSTEM THERMODY-NAMICS (BLAST) PROGRAM, VERSION 2.0. INPUT BOOKLET Final Report

E. Sowell Jun. 1979 118 p

(AD-A072435; CERL-TR-E-153) HC A06/MF A01 CSCL 09/2

Avail: NTIS

The Building Loads Analysis and System Thermodynamics (BLAST) program is a comprehensive set of subprograms for predicting energy consumption in buildings. There are three major subprograms: (1) the space load predicting subprogram, which computes hourly space loads in a building or zone based on user input and hourly weather data; (2) the air distribution system simulation subprogram, which uses the computed space load and user inputs describing the building air-handling system to calculate hot water or steam, chilled water, and electric energy demands; and (3) the central plant simulation program, which simulates boilers, chillers, onsite power generating equipment and solar energy systems and computes monthly and annual fuel and electrical power consumption and plant life cycle costs.

N80-11348# Los Alamos Scientific Lab., N. Mex. SOME dc SUPERCONDUCTING CABLES

William E. Keller 1979 27 p refs Presented at the 1979 Workshop on Public Policy Aspects of High Capacity Electric Power Transmissions, Aspen, Colo., 14-16 May 1979 (Contract W-7405-eng-26)

(LA-UR-79-1057; Conf-790527-1) Avail: NTIS HC A03/MF A01

The general characteristics of dc superconducting cables as well as details of two specific designs, one coaxial and the other double monopolar, are discussed. The special advantages of these cables lie in the relative simplicity of construction, their extremely high operating efficiency, and their compactness when compared with other ac or dc high-capacity cables cooled by flowing fluids, either at ambient or cryogenic temperatures. These features are discussed in the context of economic, environmental, and power system considerations, including some of the possible trade-offs among conventional and superconducting ac and dc systems.

N80-11368# AEG-Telefunken, Berlin (West Germany). Forschunginst.

UNCONVENTIONAL CIRCUITS FOR STATIC VOLTAGE TRANSFORMERS Final Report

Johannes Nestler, Guenther Junge, Ingeborg Tzivelekas, and Hans Wrede Bonn Bundesmin. fuer Forsch. u. Technol. Dec. 1978 269 p refs In GERMAN; ENGLISH summary Sponsored by Bundesmin. fuer Forsch. u. Technol.

(BMFT-FB-T-78-26) Avail: NTIS HC A12/MF A01; Fachinformationszentrum Energie, Phys., Math., Eggenstein-Leopoldshafen, West Ger. DM 56.90

The design and development of circuits for static converters are reported on. These include primarily thyristor/transistor circuits as well as a circuit for load-controlled converters. In thyristor/ transistor circuits transistors are used for quenching and commutation purposes as well as to protect thyristors. With these circuits the rated current can be commuted down to very low imput voltages. The load-controlled converter by virtue of this method of commutation is characterized by simple design and by the fact that it displays high efficiency at high clock frequencies. Two load-controlled converters were constructed, one of which provided a power of 20 kW at a clock frequency of 7 kHz, the efficiency achieved being 90%. Modular systems were developed for voltage converters. In this connection the possible application of heat pipes was examined for such converters with respect to the dependence on mounting position and the start-up and peak load behavior. Author (ESA)

N80-11384# Bendix Corp., Kansas City, Mo. COOLING ALUMINUM MOLDS USING HEAT PIPES Final Report

D. R. Hahn Dec. 1978 49 p ref Revised (Contract EY-76-C-04-0613) (BDX-613-2039-Rev) Avail: NTIS HC A03/MF A01

A system was developed to provide zone cooling and more efficient heat removal from an aluminum mold used to make a

polyurethane foam part. Heat removal with heat pipes and forced convection was four to six times faster than cooling without heat pipes in still air. Tests are planned to determine if zone cooling will reduce shrinkage depressions in parts fabricated in this mold.

N80-11386# California Univ., Livermore. Lawrence Livermore Lab

#### TWO-DIMENSIONAL TRANSIENT DISPERSION AND **ADSORPTION IN POROUS MEDIA**

R. V. Homsy 23 Apr. 1979 11 p refs Presented at 5th Underground Coal Conversion Symp., Alexandria, Va., 18 Jun. 1979

(Contract W-7405-eng-48)

(UCRL-81970; Conf-790630) Avail: NTIS HC A02/MF A01

Contaminant transport model was made of an underground aquifer following in situ coal gasification to determine the environmental impact on ground water. The aquifer was treated as a semi-infinite porous medium, bounded on top and bottom by impermeable parallel walls. Line, plane and finite-volume sources were studied. The two-dimensional convective-dispersion equation, which governs the rate of contaminant transport, was reduced to an ordinary differential equation and solved for an instantaneous source. Asymptotic series solutions valid for short and long times are given for a continuous-line source.

N80-11387# Idaho National Engineering Lab., Idaho Falls. HEAT TRANSFER CORRELATION DEVELOPMENT AND ASSESSMENT: A SUMMARY AND ASSESSMENT OF RETURN TO NUCLEATE BOILING PHENOMENA DURING BLOWDOWN TESTS CONDUCTED AT THE IDAHO NATIONAL ENGINEERING LABORATORY (INEL)

A. M. Eaton and E. L. Tolman Apr. 1979 80 p refs (Contract EY-76-C-07-1570)

(CDAP-TR-054) Avail: NTIS HC A05/MF A01

The data are presented which were obtained in Loss-of-Coolant Experiments (LOCE) which demonstrate the presence of cladding rewetting after the critical heat flux has been exceeded as a viable cooling mechanism during the blowdown phase of a LOCE. A brief review of the mechanisms associated with the boiling crisis and rewetting is also provided. The relevance of LOCE rewetting data to nuclear reactor licensing Evaluation Model Requirements is considered, and the conclusion is made that the elimination of rewetting and return to nucleate boiling in evaluation models represents a definite conservatism.

N80-11532\*# Battelle Columbus Labs., Ohio.

SEASAT DEMONSTRATION EXPERIMENTS WITH THE OFFSHORE OIL, GAS AND MINING INDUSTRIES Final Report

A. G. Mourad, A. C. Robinson, and J. E. Balon Nov. 1979 145 p refs

(Contract NASw-2800)

(NASA-CR-162423; BCL-OA-TFR-79-6) NTIS Avail:

HC A07/MF A01 CSCL 05B

Despite its failure, SEASAT-1 acquired a reasonable volume of data that can be used by industrial participants on a non-real-time basis to prove the concept of microwave sensing of the world's oceans from a satellite platform. The amended version of 8 experimental plans are presented, along with a description of the satellite, its instruments, and the data available. Case studies are summarized for the following experiments: (1) Beaufort Sea oil, gas, and Arctic operations; (2) Labrador Sea oil, gas, and sea ice; (3) Gulf of Mexico pipelines; (4) U.S. East Coast offshore oil and gas; (5) worldwide offshore drilling and production operations; (6) Equatorial East Pacific Ocean mining; (7) Bering Sea ice project; and (8) North Sea oil and gas.A.R.H.

#### N80-11543# Los Alamos Scientific Lab., N. Mex. GEOTHERMAL EXPLORATION METHODS AND RESULTS: INLAND STATES

J. C. Maxwell 1979 3 p refs Presented at Symp. on Geothermal Energy and its Direct Uses in the Eastern United States, Hot Springs, Va., 5 Apr. 1979

(Contract W-7405-eng-36)

(LA-UR-79-665; Conf-790433-2) NTIS

HC A02/MF A01

The Los Alamos Scientific Laboratory geothermal exploration sequence includes: (1) review of AAPG/USGS gradient maps, (2) literature search; (3) consideration of potential markets; (4) groundwater silica geothermometry; (5) analysis of bottom-hole temperatures; (6) heat flow measurement of available wells; and (7) drilling of new tests holes. Anomalies were located near Syracuse, NY (36 C/km, 56 C silica max.), near Buffalo, NY (36 C/km, 65 C silica max.), southeast Ohio, western and southwestern Nebraska, and three new warm springs in Arkansas. Other investigations found high heat generation (14 to 25 HGU) in the White Mountain batholith NH (170 C calculated at 6 km depth), uparching of the Adirondac Dome, NY, and potentially economic electricity from hot brines in southwest Arkansas.DOE

N80-11544# Texas Univ., Austin.

TERTIARY OIL RECOVERY PROCESSES RESEARCH AT THE UNIVERSITY OF TEXAS Annual Report, Oct. 1977 - Sep. 1978

R. S. Schechter and W. H. Wade Washington DOE Dec. 1978 61 p refs

(Contract EW-78-S-19-0001)

(BETC-0001-1) Avail: NTIS HC A04/MF A01

Many species of monoisomeric alkyl-substituted benzene sulfonates were synthesized and examined at low concentrations. Interfacial tension in particular was studied. Optimum salinity for high surfactant concentrations was defined as the middle of the 3-phase region. Work on surfactant adsorption was focused on a model that can explain maxima and minima in adsorption curves. A model for diffusion and stranding at the aqueous surfactant-oil interface was applied to spontaneous emulsification and extended to systems that form middle-phase microemul-

N80-11545# Pennzoil Co., Vienna, W. Va. OIL RECOVERY BY CARBON DIOXIDE INJECTION Annual Report, Jul. 1977 - Jul. 1978

L. G. Guckert and G. P. SanFilippo DOE Sep. 1978 57 p. (Contract EF-76-C-05-5301)

(ORO-5301-34) Avail: NTIS HC A04/MF A01

A project to determine the feasibility of miscible carbon dioxide oil recovery in the Rock Creek Big Injun field in Roane County, West Virginia is now showing a response to waterflood. Water injection into the backup injection wells was initiated on October 16, 1976 and water injection into the six pattern injection wells commenced on April 22, 1977. As of July 1, 1978, the cumulative injection into the nineteen injection wells totaled 1,306,966 barrels.

N80-11546# Gary Operating Co., Englewood, Colo. BELL CREEK RESIDUAL OIL SATURATION TECHNOLOGY TEST Quarterly Report, Oct. 1978 - Dec. 1978

D. Myal 18 Jan. 1979 7 p (Contract ET-78-C-03-2180)

(BETC-2180-4) Avail: NTIS HC A02/MF A01

The capabilities of different techniques to measure residual oil saturation, in situ, in a consolidated sandstone reservoir were assessed to provide a basis for d selecting appropriate methods for determining oil saturation at tertiary recovery pilot test sites. DOE

N80-11551# West Virginia Univ., Morgantown. Thermal-Hydraulics Lab.

EFFECT OF VERTICAL SCALE DISTORTION ON THE TEMPERATURE FIELD OF A THERMAL-HYDRAULIC MODEL

D. P. Michelotti, R. A. Bajura, and S. H. Swartz Nov. 1978 131 p refs

(Contract DI-14-34-0001-6214; OWRT Proj. C-7171(6214)(4)) (PB-297274/3; DPM-RAB/SHS-78-1; RR-9) Avail: NTIS HC A07/MF A01 CSCL 13B

The generation of electricity by pumped storage hydroelectric plants to supplement existing thermal power plant facilities for peak energy supply is discussed and the effects of a vertical scale distortion on the flow and temperature fields of a hydraulic model of a pumped storage reservoir system are assessed. Vertical to horizontal scale ratios of 1:1, 3:1, and 5:1 were considered. The model consisted of a submerged hot water jet discharging into an initially cold isothermal reservoir. The jet discharge geometry was patterned after what was considered to be a typical pumped storage outlet. Results are presented for various jet Froude numbers.

N80-11554 International Institute for Applied Systems Analysis, Laxenburg (Austria).

### MEDEE 2: A MODEL FOR LONG TERM ENERGY DEMAND EVALUATION

Bruno Lapillonne Nov. 1978 53 p refs (IIASA-RR-78-17) Avail: Issuing Activity

A simulation model, MEDEE 2, designed to evaluate the long-term energy demand of a country in combination with a scenario description of the main aspects of the country's social, economic, and technological evolution is described. Parameters taken into consideration are end-use total demand by category (e.g., residential space heating, service sector cooling, gasoline for intercity cars)and the potential market (maximum demand that can be technically met) for each final energy form (electricity, coal, gas, solar, oil products, and district heat). The model also calculates useful energy demand in each end-use category for which several energy forms can be used, thus determining the substitution possibilities is energy use. The scenario description is complemented with technological parameters (e.g., insulation standards, efficiencies, fuel mix), the evolution of which is specified in a way consistent with the macroeconomic assumptions.

Author (ESA)

N80-11556# Committee on Interstate and Foreign Commerce (U. S. House).

#### SOLAR COMMERCIALIZATION

Washington GPO 1979 548 p refs Hearings before the Subcomm. on Energy and Power of the Comm. on Interstate and Foreign Commerce, 96th Congr., 1st Sess., 10-11 Jan. 1979

(GPO-43-586) Avail: Subcomm. on Energy and Power

Government policies to commercialize solar energy and a program to encourage solar energy commercialization are examined. Solar energy technology and the applications of this technology are discussed. The role of government in solar energy commercialization is debated.

A.W.H.

N80-11557# Committee on Energy and Natural Resources (U.S. Senate)

#### ENERGY INITIATIVES OF THE 95TH CONGRESS

Washington GPO 1979 342 p refs Rept. for Comm. on Energy and Natural Resources, 96th Congr., 1st Sess., May 1979

(GPO-42-797; Publ-96-10) Avail: SOD HC

Congressional response to the energy problem is defined and assessed. Actions toward the utilization of solar energy, nuclear energy, geothermal energy, and the production of alcohol fuels, natural gas, and crude oils is reported.

A.W.H.

N80-11558\*# General Electric Co., Philadelphia, Pa. Space

#### EXECUTIVE SUMMARY: MOD-1 WIND TURBINE GENERA-TOR ANALYSIS AND DESIGN REPORT Final Report

Mar. 1979 61 p

(Contracts NAS3-20058; EC-77-A-29-1010)

(NASA-CR-159497; DOE/NASA/0058-79/3) Avail: NTIS

HC A04/MF A01 CSCL 10A

Activities leading to the detail design of a wind turbine generator having a nominal rating of 1.8 megawatts are reported. Topics covered include (1) system description; (2) structural dynamics; (3) stability analysis; (4) mechanical subassemblies design; (5) power generation subsystem; and (6) control and instrumentation subsystem.

A.R.H.

N80-11559\*# National Aeronautics and Space Administration. Langley Research Center, Hampton, Va.

### AN EVALUATION OF THE NASA TECH HOUSE, INCLUDING LIVE-IN TEST RESULTS, VOLUME 1

Ira H. A. Abbott, Kenneth A. Hopping, and Warren D. Hypes Nov. 1979  $\,$  72  $\,$  p  $\,$  refs

(NASA-TP-1564; L-13440) Avail: NTIS HC A04/MF A01 CSCL 10A

The NASA Tech House was designed and constructed at the NASA Langley Research Center, Hampton, Virginia, to demonstrate and evaluate new technology potentially applicable for conservation of energy and resources and for improvements in safety and security in a single-family residence. All technology items, including solar-energy systems and a waste-water-reuse system, were evaluated under actual living conditions for a 1 year period with a family of four living in the house in their normal lifestyle. Results are presented which show overall savings in energy and resources compared with requirements for a defined similar conventional house under the same conditions. General operational experience and performance data are also included for all the various items and systems of technology incorporated into the house design.

N80-11560\*# Honeywell, Inc., Minneapolis, Minn. Energy Resources Center.

SOLAR HEATING AND COOLING SYSTEMS DESIGN AND DEVELOPMENT Quarterly Report, 9 Oct. 1976 - 9 Jan. 1977

Jan. 1977 198 p

(Contract NAS8-32093)

(NASA-CR-150873; F3737-QR-102) Avail: NTIS HC A09/MF A01 CSCL 10A

Progress in the development of prototype solar heating/cooling systems is reported. Results obtained from refinement/improvement of the single family, multifamily, and commercial systems configurations and generalized studies on several of the subsystems are presented.

J.M.S.

N80-11561\*# Optical Coating Lab., Inc., City of Industry, Calif. Photoelectronics Div.

SILICON SOLAR CELL PROCESS DEVELOPMENT, FABRICATION AND ANALYSIS, PHASE 1 Annual Report, 15 Jun. 1978 - 15 Jun. 1979

H. I. Yoo, P. A. Iles, and D. P. Tanner 15 Jun. 1979 174 p

(Contract JPL-955089)

(NASA-CR-162427; DOE/JPL-955089-79/4;

DRL-74/DRD-SE) Avail: NTIS HC A08/MF A01 CSCL 10A Solar cells from RTR ribbons, EFG (RF and RH) ribbons, dendritic webs, Silso wafers, cast silicon by HEM, silicon on ceramic, and continuous Czochralski ingots were fabricated using a standard process typical of those used currently in the silicon solar cell industry. Back surface field (BSF) processing and other process modifications were included to give preliminary indications of possible improved performance. The parameters measured included open circuit voltage, short circuit current, curve fill factor, and conversion efficiency (all taken under AMO illumination). Also measured for typical cells were spectral response, dark I-V characteristics, minority carrier diffusion length, and photoresponse by fine light spot scanning, the results were compared to the properties of cells made from conventional single crystalline Czochralski silicon with ari emphasis on statistical evaluation. Limited efforts were made to identify growth defects which will influence solar cell performance. ARH

N80-11562\*# Motorola, Inc., Scottsdale, Ariz.

THE AUTOMATED ARRAY ASSEMBLY TASK OF THE LOW-COST SILICON SOLAR ARRAY PROJECT, PHASE 2 Annual Report

M. G. Coleman, L. P. Grenon, E. M. Pastirik, R. A. Pryor, and T. G. Sparks Nov. 1978 213 p (Contract JPL-954847; Proj. 2345)

(NASA-CR-162429; DOE/JPL-954847-78/4) Avail: NTIS HC A10/MF A01 CSCL 10A

An advanced process sequence for manufacturing high efficiency solar cells and modules in a cost-effective manner is discussed. Emphasis is on process simplicity and minimizing consumed materials. The process sequence incorporates texture etching, plasma processes for damage removal and patterning. ion implantation, low pressure silicon nitride deposition, and plated metal. A reliable module design is presented. Specific process step developments are given. A detailed cost analysis was performed to indicate future areas of fruitful cost reduction effort. Recommendations for advanced investigations are included.

N80-11564\*# Hughes Research Labs., Malibu, Calif. ELECTRON RADIATION DAMAGE OF (AIGa) As-GaAs SOLAR CELLS Final Report, 25 Apr. 1978 - 24 Apr. 1979 R. Loo, G. S. Kamath, and R. Knechtli Oct. 1979 71 p refs Prepared for JPL

(Contract NAS7-100)

(NASA-CR-162425) Avail: NTIS HC A04/MF A01 CSCL

Solar cells (2 cm by 2 cm (AlGa) As-GaAs cells) were fabricated and then subjected to irradiation at normal incidence by electrons. The influence of junction depth and n-type buffer layer doping level on the cell's resistance to radiation damage was investigated. The study shows that (1) a 0.3 micrometer deep junction results in lower damage to the cells than does a 0.5 micrometer junction, and (2) lowering the n buffer layer doping density does not improve the radiation resistance of the cell. Rather, lowering the doping density decreases the solar cell's open circuit voltage. Some preliminary thermal annealing experiments in vacuum were performed on the (AlGa)As-GaAs solar cells damaged by 1-MeV electron irradiation. The results show that cell performance can be expected to partially recover at 200 C with more rapid and complete recovery occurring at higher temperature. For a 0.5hr anneal at 400 C, 90% of the initial power is recovered. The characteristics of the (AlGa)As-GaAs cells both before and after irradiation are described.

N80-11565\*# Solarex Corp., Rockville, Md.

PHASE 2 OF THE ARRAY AUTOMATED ASSEMBLY TASK FOR THE LOW COST SILICON SOLAR ARRAY PROJECT Manfred Wihl, John Torro, Alan Scheinine, and Jack Anderson Nov. 1978 86 p. Sponsored by JPL and DOE (Contract JPL-954854)

(NASA-CR-162426; DOE/JPL-954854-77/4) Avail: NTIS HC A05/MF A01 CSCL 10A

An automated process sequence, to manufacture photovoltaic modules at a capacity of approximately 500 MW per year at a cost of approximately \$0.50 per peak watt is described. Verification tests were performed and are reported along with cost predictions. R.E.S.

N80-11567# California Univ., Berkeley. Lawrence Berkeley Lab.

ON-LINE TESTS OF ORGANIC ADDITIVES FOR THE INHIBITION OF THE PRECIPITATION OF SILICA FROM HYPERSALINE GEOTHERMAL BRINE. 2: TESTS OF NITROGEN-CONTAINING COMPOUNDS, SILANES, AND ADDITIONAL ETHOXYLATED COMPOUNDS

J. E. Harrar, F. E. Locke, C. H. Otto, Jr., L. E. Lorensen, and W. P. Frey 1 Jun. 1979 24 p refs (Contract W-7405-eng-48)

(UCID-18195) Avail: NTIS HC A02/MF A01

Several new classes of organic compounds were screened as potential geothermal scale control agents by examining their effect on the precipitation of silica from Magmamax No. 1 brine. The substances were tested using the Brine Treatment Test System at the Niland, California, Test Site. Solutions of the test substances were injected into flowing brine at 210 C, the brine was flashed to 125 C, and then the kinetics of solids and silica precipitation from effluent brine held at 90 C were measured. Three new types of compounds were shown to have activity as precipitation

inhibitors: polyethylene imines, polyethyloxazalines, and quaternary ammonium compounds containing polyoxyethylene. Among the latter, Ethoquad 18/24, which is methylpolyoxyethylene(15) octadecylammonium chloride, is the leading candidate antiscalant. It is a more powerful inhibitor of silica precipitation than the pure polyoxyethylene polymers, and it apparently has no high temperature solubility limitations. Measurements were made of the concentrations of monomeric silica and the effect of addition of inhibitor at various points in the Brine Treatment Test

N80-11570\*# Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena. SAMICS: INPUT DATA PREPARATION

R. G. Chamberlain and R. W. Aster 1 Mar. 1979 35 p ref Revised

(NASA-CR-162421; DOE/JPL-1012-22-Rev-A) Avail: NTIS HC A03/MF A01 CSCL 10A

The Solar Array Manufacturing Industry Costing Standards (SAMICS) provide standard formats, data, assumptions, and procedures for estimating the price that a manufacturer would have to charge for the product of a specified manufacturing process sequence. A line-by-line explanation is given of those standard formats which describe the economically important characteristics of the manufacturing processes and the technological structure of the companies and the industry. This revision provides an updated presentation of Format A Process Description. consistent with the October 1978 version of that form. A checklist of items which should be entered on Format A as direct expenses is included.

N80-11571# Rocket Research Corp., Redmond, Wash. HEAT PUMP CENTERED INTEGRATED COMMUNITY ENERGY SYSTEMS: SYSTEM DEVELOPMENT terim Report

Feb. 1979 105 p refs (Contract W-31-109-eng-38)

(ANL/ICES-TM-27) Avail: NTIS HC A06/MF A01

Heat pump centered intergrated community energy systems (HP-ICES) are energy systems for communities which provide heating, cooling, and/or other energy services through the use of heat pumps. Since heat pumps primarily transfer energy from existing and otherwise probably unused sources, rather than convert it from electrical or chemical to thermal form, HP-ICES are viewed as having significant potential for energy conservation. The System Development phase of the HP-ICES project is described and the results are reported. DOE

N80-11573# Mechanical Technology, Inc., Latham, N. Y HIGH COP HEAT PUMP SYSTEM, PHASE 1, RESULTS Apr. 1979 151 p

(Contract EC-77-C-01-5056)

(HCP/M5056-01; TR-1) Avail: NTIS HC A08/MF A01

The High COP Heat Pump System described is a device for recovering heat or energy usually lost in process streams by rejection to once-through cooling systems. The acetone recovers process makes use of river water to cool process streams, with the river water taking on heat in the heat exchange process. Heat or energy is thereby rejected from the process stream and is not recovered for reuse. The MTI Heat Pump System allows reuse of this energy. The estimated cost of a production Heat Pump System is \$625,000 plus installation. The system can deliver 20 million BTU's per hour of latent steam energy. Based on a steam cost of \$1.89 million BTU's for natural gas, the system being in service for 7884 hours per year (90% in-service rate), a 20% investment tax credit and installation costs at 50% of hardware costs; the discounted cash flow rate of return is 29.5%. Breakeven points are 2.6, 3.6, and 4 years for oil, gas and coal respectively. Details are provided about the Heat Pump System operation in the section entitled Process Description. Cycle Optimization is discussed, providing insight on the technique of determining the optimum system configuration. System Sensitivity shows how relatively little the output varies with changes in turbine and compressor efficiencies. Details of System Design are given, in which design objectives, applicable codes, working fluid, general arrangement, and component design features are discussed. Installation at the host site is analyzed,

as is System Cost. Under Environmental Effects, it is shown that the Heat Pump System will increase the quality of the environment.

#### N80-11574# Georgia Inst. of Tech., Atlanta. HEAT PUMP CENTERED INTEGRATED COMMUNITY ENERGY SYSTEMS; SYSTEM DEVELOPMENT Interim Report

D. W. Wade, B. C. Trammel, B. S. Dixit, D. C. McCurry (McCurry and Assoc., Atlanta), and B. A. Rindt (McCurry and Assoc., Atlanta) Feb. 1979 201 p refs Prepared for Argonne National Lab. (Contract W-31-109-eng-38)

(ANL-ICES-TM-28) Avail: NTIS HC A10/MF A01

The heat pump - wastewater heat recovery (HP-WHR) scheme is one approach to heat pump centered integrated community energy systems that proposes to reclaim low grade thermal energy from a community's wastewater effluent. The concept of an HP-WHR system is developed, the potential performance and economics of such a system is evaluated and the potential for application is examined. A thermodynamic performance analysis of a hypothetical system projects an overall system coefficient of performance of from 2.181 to 2.264 for wastewater temperatures varying from 50 F to 80 F. Primary energy source savings from the implementation of this system is projected to be 5.014 QUADS, or the energy equivalent of 687 millions tons of coal, from 1980 to the year 2000. Economic analysis shows the HP-WHR scheme to be cost competitive, on the basis of a net present value life cycle cost comparison, with conventional residential and light commercial systems.

N80-11576# Argonne National Lab., III. Energy and Environmental Systems Div.

#### TRANSFER OF ENERGY CONSERVATION TECHNOLOGY TO INDUSTRY. A PRELIMINARY SURVEY OF EXISTING **MECHANISMS**

Carolyn S. Colsher and Allan R. Evans Sep. 1978 55 p refs (Contract W-31-109-eng-38)

(ANL/EES-TM-28) Avail: NTIŞ HC A04/MF A01

To ascertain the current level of interest, capabilities, and involvement in the dissemination of information on industrial energy conservation, a survey was conducted. Based upon 150 responses from major groups, it was found that although form and level of activity varied widely, the most frequently used communications channels were workshops, seminars, conferences, energy audits, energy committees, and distribution of literature. Among the areas cited as needing improvement was (1) awareness and acquisition of literature and (2) availability of industry or process specific technical manuals for plant managers or engineers. The most successful government/industry interfaces were felt to be workshops held cooperatively with trade associations, programs to encourage sharing of generic conservation techniques between firms, and published literature.

N80-11577# Argonne National Lab., III. Energy and Environmental Systems Div.

#### IMPLEMENTING ENERGY CONSERVATION STRATEGIES IN ENERGY MATERIALS TRANSPORT: U. S. DEPARTMENT OF ENERGY AND OTHER GOVERNMENT AGENCY POLICY-MAKING DECISIONS

K. M. Bertram Nov. 1978 62 p refs (Contract W-31-109-eng-38)

(ANL/EES-TM-32) Avail: NTIS HC A04/MF A01

The policy-making channels within Federal agencies for the strategy implementation efforts of U.S. Department of Energy conservation projects are defined. Government agency policymaking mechanisms are reviewed and analyzed. Emphasis was placed upon relevant Federal agencies and summary treatment given other federal, state, and local agencies. Brief case studies were made of states and localities which have significant effects upon energy materials transport systems. The main findings of the report are that two primary channels exist for effecting this project's policy-oriented strategies: inputs to legislation and inducement of regulatory involvements. DOE

N80-11578# Department of Energy, Washington, D. C. Office of Solar, Geothermal, Electric and Storage Systems. WIND ENERGY SYSTEMS: PROGRAM SUMMARY

Dec. 1978 134 p refs

(DOE/ET-0093) Avail: NTIS HC A07/MF A01

Projects to develop reliable and economically viable wind energy systems and enable the earliest possible commercialization of wind power are described. The program's general organization is also described.

N80-11579# California Univ., Berkeley. Lawrence Berkeley

GEOTHERMAL ENERGY FOR INDUSTRIAL APPLICATION
R. L. Fulton Mar. 1979 19 p refs Presented at Assoc. of Energy Engineers Conf., San Francisco, Calif., 21 Mar. 1979 (Contract W-7405-eng-48)

(LBL-8919: Conf-790358-1) Avail: NTIS HC A02/MF A01 The types of geothermal resources are reviewed briefly. The uses of geothermal energy for electrical generation and non-electric direct use are described.

#### N80-11580# Sandia Labs., Albuquerque, N. Mex. CONCENTRATING SOLAR COLLECTOR TEST RESULTS COLLECTOR MODULE TEST FACILITY (CMTF) Summary Report, Jan. - Dec. 1978

V. E. Dudley and R. M. Workhoven Mar. 1979 54 p refs (Contract EY-76-C-04-0789)

(SAND-78-0977) Avail: NTIS HC A04/MF A01

The results are summarized of tests on four concentrating solar collectors at output fluid temperatures from 100 C to 300 C.

#### N80-11581# Sandia Labs., Albuquerque, N. Mex. HEAT LOSS REDUCTION TECHNIQUES FOR ANNULAR SOLAR RECEIVER DESIGNS

A. C. Ratzel and C. E. Simpson Feb. 1979 56 p refs (Contract EY-76-C-04-0789)

(SAND-78-1769) Avail: NTIS HC A04/MF A01

Analytical and experimental work was undertaken to quantify thermal conduction and natural convection heat losses in annular solar receiver geometries. Techniques studied for reducing conduction heat loss include evacuation of the annulus gas, oversizing of the annular space while maintaining slight vacuum levels, and use of gases other than air in the annular space.

#### N80-11582# Sandia Labs., Albuquerque, N. Mex. DESIGN CONSIDERATIONS FOR A PROPOSED PASSIVE VACUUM SOLAR ANNULAR RECEIVER

T. D. Harrison, G. N. Bond, and A. C. Ratzel Apr. 1979 43 p refs

(Contract EY-76-C-04-0789)

(SAND-78-0982) Avail: NTIS HC A03/MF A01

Testing of an east-west 90 deg parabolic trough collector revealed problems associated with achieving and maintaining annulus pressures below 1 Pa along with other receiver problems and maintaining annulus pressures below 1 Pa along with other receiver problems (black chrome degradation) that reduced the performance of the collector. Analyses of the test results show that a vacuum in the annulus of the receiver assembly can significantly increase the amount of energy collected daily by at least 13% depending upon the reflector trough and tracking capabilities of the collector design. The problem associated with the current receiver are described and a modified passive vacuum design intended to correct the problems is presented. Test results will determine whether the value of the additional energy collected is greater than the cost of achieving the vacuum. DOE

N80-11585# Brookhaven National Lab., Upton, N. Y. National Center for Analysis of Energy Systems.

#### REGIONAL REFERENCE ENERGY SYSTEMS: ELECTRIC UTILITY APPLICATIONS

A. Hermelee Jan. 1979 106 p refs (Contract EY-76-C-02-0016)

(BNL-50962) Avail: NTIS HC A06/MF A01

The Reference Energy Systems (RES) projection methodology is reformulated in order to apply the format to an electric utility region. The system's approach, incorporating all resources, technologies and uses of energy, allows a utility to assess the impact of alternate technologies and policies across the entire energy system. Demand patterns for 25 end-use demand categories within the residential, commercial, industrial, and transportation sectors are developed for a base case scenario representing reasonable energy use patterns derived in a consistent manner by applying engineering techniques to the best available information. The impact of a new technology in terms of resource consumption is evaluated by modifying the energy flow paths to incorporate the new technology. Alternate paths through the network reflect the substitutability of resources and technologies for one another. DOF

N80-11586# Argonne National Lab., III. DOE HEAT PUMP CENTERED INTEGRATED COMMUNITY **ENERGY SYSTEMS PROJECT** 

J. M. Calm 1979 17 p refs Presented at Heat Pump Technol., Inform. Exchange Meeting, Gaithersburg, Md., 7 Mar. 1979 (Contract W-31-109-eng-38)

(CONF-790362-1) Avail: NTIS HC A02/MF A01

The development of centralized, distributed, and cascaded heat pump centered integrated community energy systems using both waste and natural heat is discussed. These systems show promise for cost reduction, increased reliability, and avoidance of adverse environmental effects in providing process and space heating and cooling.

N80-11587# Argonne National Lab., III. WORLD ENERGY DATA SYSTEM (WENDS)

W. E. Lareau 1979 45 p refs Presented at the Spring Meeting of the Assoc. of System 2000 Users for Tech. Exchange (ASTUTE), Austin, Tex., 3 Apr. 1979 (Contract W-31-109-eng-38)

(CONF-790461-2) Avail: NTIS HC A03/MF A01

The storage of preformatted textual information in a completely user oriented data base, the World Energy Data System, is discussed. The system allows qualified users online access to nonclassfied management level data on worldwide energy technology and research and development activities. WENDS transmits up-to-date information on foreign energy technology and research and development programs to DOE program divisions, the Congress, and other U.S. Government officials going abroad. The WENDS concept is described and the method storing and retrieving the textual information is discussed

N80-11589# Department of Energy, Seattle, Wash. INCREASED ENERGY FROM BIOMASS: 1985 POSSIBILI-TIES AND PROBLEM. WORKING PAPERS FOR PLAN-**NERS** 

1978 202 p From Pacific Northwest Bioconversion Workshop, Portland, Oreg., 24-26 Oct. 1978; Sponsored in cooperation with the Energy Offices of Alaska, Idaho, Montana, Oregon and Washington, U. S. Forest Service and Oregon State Univ. (RLO-788-5; Conf-7810132) Avail: NTIS HC A10/MF A01

Summaries, together with charts and data in some cases, of the talks given by panelists to the Conference are compiled. The first four sessions examined current agricultural and peat applications with emphasis on wood use. The resource base for agricultural wastes, peat, and wood was evaluated. In the fifth session the barriers and constraints on the use of biomass as an energy source were identified and some possible solutions suggested. The sixth session consisted of work groups on the production of gaseous and liquid fuels, utility applications of biomass and impacts, residential and small scale applications, and biomass supply systems. Extensive summaries were provided of the discussions of each work group; these included recommendations on private and public actions necessary to foster the use of biomass for energy.

N80-11590# Department of Energy, Washington, D. C. DEPARTMENT OF ENERGY FOSSIL ENERGY EQUIPMENT **DEVELOPMENT PROGRAMS** 

J. L. Powell, W. R. Williams (ORNL), T. K. Lau, and H. T. Jones Apr. 1979 13 p refs Presented at AICE Meeting, Houston, Tex., 1 Apr. 1979

(Contract W-7405-eng-26)

(CONF-790405-14) Avail: NTIS HC A02/MF A01

Design, construction, and operation of synthetic fuel processing plants in the near future must consider equipment requirements to make such operations economically feasible and sound. The Department of Energy's approach is to use as much available equipment as practical, to modify and qualify equipment which is not expected to perform acceptably in its standard configuration, and to develop new equipment only if no current capability or acceptable alternative exists. Approaches, philosophy, goals, and implementation of fossil energy equipment development programs are discussed. Some results of a recent survey of industrial coal conversion equipment capabilities are presented as an example of current equipment, state-of-the-art and equipment development needs.

N80-11592# Los Alamos Scientific Lab., N. Mex. DEVELOPMENT OF INTEGRATED THERMIONIC CIRCUITS FOR GEOTHERMAL HIGH-TEMPERATURE APPLICA-TIONS

J. Byron McCormick and D. Wilde 1979 6 p refs Presented at 20th Ann. Logging Symp., Tulsa, Okla., 3 Jun. 1979 (Contract W-7405-eng-36)

(LA-UR-79-723; Conf-790605-1)

NTIS

HC A02/MF A01

A new integrated thermionic device capable of withstanding ambient temperatures in excess of 500 C is reported. The evolution of the integrated thermionic circuit (ITC) is discussed and a set of practical device design and performance equations are demonstrated.

N80-11593# Department of Energy, Washington, D. C.

Economic Regulatory Administration.

STANDBY CONSERVATION PLAN NO. 2: EMERGENCY BUILDING TEMPERATURE RESTRICTIONS. ECONOMIC ANALYSIS

Feb. 1979 39 p refs (DOE/ERA-0047) Avail: NTIS HC A03/MF A01

The emergency building temperature restrictions plan is intended to be implemented in the event of a petroleum supply interruption or to satisfy the obligations of the United States under the International Energy Program. The economic impact of the measure was analyzed by assuming that the measure was implemented during 1980-1981 in a hypothetical petroleum shortfall of 15%. The plan is designed to reduce energy consumption by placing restrictions on thermostat settings for heating, cooling, and hot water in commercial, industrial, and public buildings. Specifically, the plan would mandate a maximum thermostat setting of 65 F for space heating, a minimum setting of 80 F for space cooling, and maximum setting of 105 F for hot water. Hotels and motels, hospitals, and areas of buildings where specific temperatures are required to maintain special equipment or supplies are exempt. Also exempt is hot water used for dishwashing and other uses where health codes require higher temperatures for sanitation. Effects of the measure on worker comfort and productivity are discussed in the appen-

N80-11594# General Electric Co., Schenectady, N. Y. Corporate Research and Development Dept.

REGENERATIVE FLYWHEEL ENERGY STORAGE SYSTEM E. L. Lustenader, I. H. Edelfelt, D. W. Jones, A. B. Plunkett, E. Richter, and F. G. Turnbull 1979 30 p refs (Contract W-7405-eng-48)

(UCRL-13982) Avail: NTIS HC A03/MF A01

The current status of a program to develop and evaluate a regenerative flywheel energy storage system is described. The system was designed for a battery/flywheel electric vehicle in the 3000 pound class.

N80-11595# Edgerton, Germeshausen and Grier, Inc., Idaho Falls, Idaho.

### INEL GEOTHERMAL ENVIRONMENTAL PROGRAM Annual Report, 1978

Susan G. Spencer, J. F. Sullivan, and N. E. Stanley Apr. 1979 65 p refs

(Contract EY-76-C-07-1570)

(TREE-1340) Avail: NTIS HC A04/MF A01

The monitoring and research efforts were conducted to characterize the beneficial and detrimental impacts resulting from the development of moderate temperature geothermal resources in the Raft River Valley.

## N80-11596# Los Alamos Scientific Lab., N. Mex. NIGHT STORAGE AND BACKUP GENERATION WITH ELECTROCHEMICAL ENGINES

G. R. B. Elliott and N. E. Vanderborgh 1978 15 p Presented at Solar Thermal Test Facilities Users Assoc. Meeting, Golden, Colo., 11 Apr. 1978

(Contract W-7405-eng-36)

(LA-UR-78-1149; Conf-780447-1)

HC A02/MF A01

vail: NTIS

The design of Li-12 electrochemical engines which both store and generate electric power is described. The conversion of heat energy to electrical energy in the electrochemical engines is examined. The laboratory performance of electrochemical engines based on the Li-12 chemical system is discussed. The calculations for the expected performance of particular Li-12 electrochemical engines used for storage and for each solar to electric conversion path are presented.

A.W.H.

## N80-11598# Midwest Research Inst., Golden, Colo. PROCEEDINGS: SOLAR THERMAL POWER USER REVIEW PANEL MEETING

Mar. 1979 33 p Conf. held 1-2 Mar. 1979

(Contract EG-77-C-01-4042)

(SERI/TP-69-221) Avail: NTIS HC A03/MF A01

Solar Energy Research Institute presentations on (1) the R&D mission in Solar Thermal technology; (2) TID management and organization; and (3) target audience characteristics are reviewed. Synopses of discussions on target audience needs are included.

DOE

# N80-11599# Ocean Data Systems, Inc., Monterey, Calif. OTEC THERMAL RESOURCE REPORT FOR CARIBBEAN SEA PLANT SHIP 13-15 DEGREES N 75-80 DEGREES N W. A. Wolff May 1979 41 p refs

(Contract ET-78-C-01-2898)

(HCP/T2898) Avail: NTIS HC A03/MF A01

A large and consistent thermal resource which exists in the area between 13-15 deg North latitude and 75-80 deg West longitude, was studied for possible use by a plant ship. The area is primarily in the Colombian Basin of the Caribbean Sea. The average annual delta T (surface temperature minus temperature at depth) for the area at 1000 meters is 22.4 C. At 650 meters, an adequate delta T exists, with no month of the year having a mean delta T less than 19 C. The total variability of temperature at all depths in this Caribbean area is small. Below 1000 meters, the total variation is extremely small. The area has a good mixed layer at all times of the year. It is occasionally exposed to strong winds from hurricanes. Currents generally show the same general pattern throughout the year with a predominant flow toward the west or northwest at average speeds of 40-50 cm/sec.

N80-11601# Department of Energy, Washington, D. C. Energy Information Administration.

#### RESIDENTIAL SECTOR ENERGY FORECASTS, NATIONAL LEVEL FOR 1978-ELECTRICITY, NATURAL GAS, NUMBER TWO FUEL OIL AND PROPANE

P. DonVito and H. Walton Mar. 1979 23 p refs (DOE/EIA-0102/50) Avail: NTIS HC A02/MF A01

Methods and results of estimating the average 1978 price of fuels used in the residential sector are given. Average (as opposed to marginal) prices were requested and are given for electricity, natural gas. No. 2 fuel oil, and propane. The projected

1978 average fuel prices resulting from the analysis are: electricity, 4 cents/kWh; natural gas, 27.5 cents/therm; No. 2 fuel oil, 49.2 cents/gallon; and propane, 44.9 cents/gallon. Regional and seasonal variations are not discussed here. DOE

## N80-11602# Midwest Research Inst., Kansas City, Mo. STATUS OF INFORMATION FOR CONSUMERS OF SMALL WIND ENERGY SYSTEMS

P. Weis Feb. 1979 19 p refs Presented at the Symp. on Commercialization of Solar and Conserv. Technol., Miami Beach, Fla., 11 Dec. 1978

(Contract EG-77-C-01-4042)

(SERI/TP-51-158; Conf-781235-3)

HC A02/MF A01

Avail: NTIS

Research efforts, existing information sources, and ongoing work to improve data necessary for potential consumers of small wind energy conversion systems are presented.

DOE

# N80-11603# Monsanto Research Corp., Dayton, Ohio. ENERGY STORAGE FOR SOLAR AIR CONDITIONING APPLICATIONS UTILIZING A FORM-STABLE, HIGH DENSITY POLYETHYLENE PELLET BED

R. B. Whitaker, G. H. Jenkins, G. L. Ball, and I. O. Salyer (Dayton Univ. Res. Inst.) 1979 10 p refs Presented at the Solar Energy Storage Options Workshop, San Antonio, Tex., 18 Mar. 1979

(Contract EY-76-C-04-0053)

(MLM-2598(OP); Conf-790328-1)

Avail: NT

HC A02/MF A01

The results obtained from a cost effectiveness comparison of three different methods of crosslinking high density polyethylene (HDPE) to make it a form-stable, useful thermal energy storage (TES) material are presented in some detail. In addition, the projected costs of a proposed HDPE-liquid thermal transfer system are compared to those of other liquid and air thermal transfer TES systems operative in the same 100 to 150 C range.

### N80-11604# Stanford Linear Accelerator Center, Calif. HYDROGEN-ELECTRIC POWER DRIVES

F. F. Hall Oct. 1978 10 p

(Contract EY-76-C-03-0515)

(SLAC-PUB-2203; Conf-781214-2)

Avail: NTIS

HC A02/MF A01

Hydrogen-electric power drives consist of most or all of the following: chilled hydrogen gas tank, liquid oxygen tank, a bank of fuel cells, dc/ac inverter, ac drive motors, solid state ac speed control, dc sputter-ion vacuum pumps, steam turbine generator set and steam condenser. Each component is described. Optional uses of low pressure extraction steam and warm condensate are listed. Power drive applications are listed. Impact on public utilities, fuel supplies, and users is discussed.

N80-11605# Battelle Pacific Northwest Labs., Richland, Wash. USER MANUAL FOR GEOCITY: A COMPUTER MODEL FOR GEOTHERMAL DISTRICT HEATING COST ANALYSIS H. D. Huber, C. L. McDonald, and S. C. Schulte Oct. 1978 200 p refs

(Contract EY-76-C-06-1830)

(PNL-2742) Avail: NTIS HC A09/MF A01

A computer model called GÉOCITY was developed to systematically calculate the potential cost of district heating using hydrothermal geothermal resources. GEOCITY combines climate, demographic factors, and heat demand of the city, resource conditions, well drilling costs, design of the distribution system, tax rates, and financial factors into one systematic model. The GEOCITY program provides the flexibility to individually or collectively evaluate the impact of different economic and technical parameters, assumptions, and uncertainties on the cost of providing district heat from a geothermal resource. Both the geothermal reservoir and distribution system are simulated to model the complete district heating system. GEOCITY calculates the unit cost of energy and the unit cost of heat for the district heating system based on the principle that the present worth of

the revenues will be equal to the present worth of the expenses including investment return over the economic life of the distribution system.

N80-11606# Fletcher (A. L.) and Associates, Gainesville, Fla.
ANALYSIS OF FINANCIAL PROGRAMS FOR ENERGY
CONSERVATION: MARKET SIMULATION (PENETRATION)
MODEL

G. S. Maddala, J. W. Milliman, and R. B. Roberts  $\,$  Aug. 1978 273  $\,$  n  $\,$  refs

(Contract EC-76-C-01-8662)

(HCP/M8662-1) Avail: NTIS HC A12/MF A01

A simulation model was developed to evaluate the effects of Federal financial-incentive programs. Specifically the model was developed for two industries: primary metals and stone, clay, and glass. The model is designed to be a link between existing macro models of the economy and micro engineering models. The model is also designed as a prototype that could be easily adapted to a variety of industries. The model, as currently developed, performs the following major functions: (1) evaluates the impact of different financial incentive programs on the rate of market penetration of energy-saving technologies; (2) estimates the energy saved over-time because of these programs; (3) estimates the change in energy efficiency of the capital stock because of these programs; (4) estimates the value of the energy saved and the cost to the government of the program. DOE

N80-11607# Fluor Engineers and Constructors, Inc., Irvine, Calif. HEBER GEOTHERMAL DEMONSTRATION POWER PLANT Interim Report, Aug. 1977 - Jan. 1978

Aug. 1978 67 p refs Sponsored in part by San Diego Gas and Electric Company (EPRI Proj. 580-2)

(EPRI-ER-863; IR-1) Avail: NTIS HC A04/MF A01

The work performed from August 1977 through January 1978 pertinent to the design of the demonstration plant is reported. The Heber project objective is to design, construct and operate a power plant to produce a net power output of 45 MW/sub e/, deriving energy from a low-salinity, moderate temperature (360 F, 182 C) brine heat source available from the Heber geothermal reservoir. A binary cycle conversion system employs a light alphatic hydrocarbon mixture to derive heat from the brine supply, through heat exchangers, and drive the turbine-generator to produce power. Power output will be distributed to California's Imperial Valley.

## N80-11608# Los Alamos Scientific Lab., N. Mex. GENERAL-PURPOSE HEAT SOURCE DEVELOPMENT. PHASE 1: DESIGN REQUIREMENTS

E. C. Snow and R. W. Zocher Sep. 1979 24 p refs (Contract W-7405-eng-36)

(LA-7385-SR) Avail: NTIS HC A02/MF A01

Studies were performed to determine the necessary design requirements for a PuO2 General Purpose Heat Source (GPHS). Systems and missions applications, as well as accident conditions, were considered. The results of these studies, along with the recommended GPHS design requirements, are presented and discussed.

N80-11609# Addis Translations International, Portola Valley, Calif.

### CONVERSION OF RADIANT ENERGY INTO CHEMICAL ENERGY

G. Calzaferri Nov. 1978 44 p refs Transl. into ENGLISH from Chimia, Switzerland, v. 32, no. 7, Nov. 1978 p 241-253 (UCRL-Trans-11427) Avail: NTIS HC A03/MF A01

The conversion of light into chemical energy as well as the conversion of chemical energy into light leads to exciting speculations and experiments. Reversible photoredox reactions appear to be the most promising chemical system for converting solar energy into chemical or electrochemical energy. Finding selective electrode material in photogalvanic cells is one of the problems to be solved. Selective electrode material for Fe(+3)/sub sq/Fe(+2)/sub sq was found in the thionine/iron system as well as in the iodine/iron system. Attention should now be focused

on reversible two or more photon processes at low light intensities because clevage of water in the visible region cannot be done with one photon.

N80-11612# Transportation and Economic Research Associates, Inc., Arlington, Va.

## DISAGGREGATING PIES FUEL FORECASTS, VALIDATING PIES TRANSPORTATION MODEL DATA BASE, AND OTHER TECHNICAL SERVICES

15 Sep. 1978 84 p

(Contract EC-77-C-01-8578)

(TID-29000) Avail: NTIS HC A05/MF A01

Three research tasks concerned with modifications and/or alterations to the PIES (Project Independence Evaluation System) and one auxiliary research task are reported. The first task, a modification to the transportation data base for petroleum refining regions, was necessitated by a proposed change of the present seven refining districts to ten refining districts. Five of the Standard Tables on transportation costs required changes. Tariffs and route descriptions are given in interregional pipeline rates for crude oil and petroleum products. Pipeline tariffs and tanker costs for distribution of Alaskan oil to PIES refining regions are tabulated. In the second task the structure of the coal transportation submodel in PIES was changed by building a simplified transshipment network which makes it possible to easily track coal from the mine to the point of use. The third task is a brief description of natural gas rates and rate making practices in the U.S. The fourth task analyzes differences in actual wholesale prices in various other locations in a region (as opposed to the PIES centroid) with respect to the differences in transportation

N80-11613# Sandia Labs., Albuquerque, N. Mex. Midtemperature Solar Systems Test Div.

## MIDTEMPERATURE SOLAR SYSTEMS TEST FACILITY (MSSTF) PROJECT TEST RESULTS: PHASE 4A MSSTF SYSTEM OPERATION

Thomas D. Harrison and William H. McCulloch Nov. 1978 53 p refs

(Contract EY-76-C-04-0789)

(SAND-78-1088) Avail: NTIS HC A04/MF A01

The results of testing the Department of Energy's Midtemperature Solar Systems Test Facility (MSSTF) at Sandia Laboratories, Albuquerque, New Mexico are summarized. The system is a dispersed power system that collects solar energy and supplies both the electrical and thermal energy demands of a representative load. Testing was done between July 1976 and March 1978. The Phase IVA MSSTF studied consists of: (1) a 200-m sq m (2160-sq ft) east-west parabolic trough collector field subsystem, which collects a measured 431-kWh thermal on a typical winter day and as estimated 483 kWh on a typical summer day; (2) a high-temperature thermocline storage subsystem, capable of storing 278-kWh thermal energy in Therminol 66 between 240 C and 310 C: (3) fluid-transfer equipment, including piping. pumps, and valves; (4) a prime-mover subsystem (toluene heat exchanger and turbine/generator) to convert thermal energy to electrical energy; and (5) a control and data-acquisition system. A brief description of each of these elements is given, and test results are reported. DOE

N80-11614# California Univ., Berkeley. Lawrence Berkeley

ENERGY CONSERVATION: POLICY ISSUES AND END-USE SCENARIOS OF SAVINGS POTENTIAL PART 3: POLICY BARRIERS AND INVESTMENT DECISIONS IN INDUSTRY Sep. 1978 54 p.

(Contract W-7405-eng-48)

(LBL-7896-Pt-3) Avail: NTIS HC A04/MF A01

Industrial decision making was investigated with respect to energy conservation. It was concluded that government policy could be formulated to encourage conservation investments, but government intervention should be limited to those situations where it is both necessary and likely to be effective. To assist policy makers in understanding the industrial decision making

process and recognizing the factors which prevent a measure from being adopted, a methodology is developed that can be applied to most conservation measures in all industrial subsectors. The methodology is summarized in two flow charts and a matrix.

#### N80-11615# Institute of Gas Technology, Chicago, III. INFLUENCE OF ELECTROLYTE COMPOSITION ON ELEC-TRODE KINETICS IN THE MOLTEN CARBONATE FUEL CELL

P. Ang and A. F. Sammells 1978 30 p refs Presented at the 2d Intern. Symp. on Molten Salts, Pittsburgh, Pa., 15-20 Oct. 1978; sponsored by the Electrochem. Soc., Inc. (Contract EM-78-C-03-1735)

(CONF-781063-2) Avail: NTIS HC A03/MF A01

Electrode Kinetics for fuel oxidation on nickel and cobalt electrodes is discussed for three selected molten carbonate mixtures. Activation kinetics under the probable mixed-control conditions present in the electrochemical half-cell were determined using a potential step technique. With all melts, the highest exchange current values were found on nickel anodes, and the highest of these values were found for the melt comprised of 43.5 mole percent Li2CO331.5 mole percent Na2CO3-25 mole percent K2CO3. For this ternary melt the exchange current density on nickel varied from 78 mA/sq cm for intermediate-Btu fuel to 22 mA/sq cm for low-Btu fuel at 650 C. The exchange current density was found to have a reaction order of around 0.25 for hydrogen, carbon dioxide, and water. Electrochemical performance on the two anode materials in the three melts is discussed, and a tentative reaction mechanism for the oxidation reaction is suggested.

#### N80-11616# Los Alamos Scientific Lab., N. Mex. ENERGY SAVINGS FOR A SOLAR HEATED AND COOLED BUILDING THROUGH ADAPTIVE OPTIMAL CONTROL

D. R. Farris and James L. Melsa Nov. 1978 9 p refs Presented at IEEE Conf. on Decision and Control, San Diego, Calif., 10 Jan. 1979 Prepared in cooperation with Notre Dame Univ. (Contract W-7405-eng-36)

NTIS (LA-UR-78-2986; Conf-790105-1) Avail: HC A02/MF A01

The applicability of adaptive and optimal control techniques to the control of heating, ventilating, and air conditioning systems of solar heated and cooled buildings is described. The suitability of optimal and adaptive concepts is discussed and the selected approach is explained. An integral quadratic cost functional to define optimal performance and an identification process to produce a linearized building model are discussed. The building model is described and heating system simulations of three versions of the adaptive optimal controller are reported along with a simulation of a conventional controller for comparison.

#### N80-11617# Midwest Research Inst., Golden, Colo. RESEARCH OVERVIEW OF BIOLOGICAL AND CHEMICAL CONVERSION METHODS AND IDENTIFICATION OF KEY RESEARCH AREAS FOR SERI Final Report

T. A. Milne, John S. Connolly, Robert E. Inman, Thomas B. Reed, and Michael Seibert Sep. 1978 75 p refs (Contract EG-77-C-01-4042)

(SERI/TR-33-067) Avail: NTIS HC A04/MF A01

The current and future research areas of the biological and chemical conversion branch is presented. Energy and petrochemical substitutes from biomass, thermochemical conversion, and photoconversion are research areas examined.

N80-11618# California Univ., Livermore. Lawrence Livermore Lab.

#### MATERIALS PROGRAM FOR FIBER COMPOSITE FLY-WHEELS

J. A. Rinde 10 Oct. 1978 13 p refs Presented at 1st Inform. Exchange Conf., Luray, Va., 24 Oct. 1978 (Contract W-7405-eng-48) (UCRL-81724; Conf-781046-9) Avail:

HC A02/MF A01

NTLS

A rubberized epoxy resin that offers improved fracture toughness and suitable performance at moderately elevated temperatures (up to 70 C) and six epoxy resins for service at 150 C were evaluated. In addition, the rubberized epoxy resin was used as a matrix in Kevlar 49 composites and engineering design data were generated. Stress rupture tests were initiated on E-glass composites at load levels of 60% to 85% of short term strength. Dynamic fatigue tests on Kevlar 49 composites in the tension-tension mode and fatigue tests on a Kevlar 49 composite ring specimen at 50% to 75% ultimate strength were

N80-11619# Argonne National Lab., III.

#### PRELIMINARY MATERIALS ASSESSMENT IN SOLAR DEMONSTRATION SYSTEMS

C. F. Cheng Nov. 1978 29 p refs Presented at the ASME Energy Technol. Conf., Houston, Tex., 5 Nov. 1978 (Contract W-31-109-eng-38)

Conf-781112-8) (ANL/EES-CP-30;

HC A03/MF A01

Materials performance in solar demonstration systems is assessed from published literature and service experience. The solar demonstration systems and the materials used in the collector and transport systems are summarized.

N80-11620# Chalmers Univ. of Technology, Goteborg (Sweden). Institutionen foer Fysik.

#### SPECTRALLY SELECTIVE SURFACES WITH COATINGS COMPRISED OF ULTRAFINE METAL PARTICLES

C. G. Granqvist 1978 15 p refs Presented at the Symp. on Solar-Thermal Power Stations, Cologne, 12 Apr. 1978 (AED-Conf-78-212-004; Conf-780425-7) Avail: HC A02/MF A01

Efficient photothermal conversion of solar energy requires high absorption at wavelengths lambda > lambda/sub c/ and low absorption at lambda > lambda/sub c/, where lambda/sub c/ is approximately 2 micro m. Such spectrally selective surfaces can be prepared by coating metal plates with films consisting of ultrafine metal particles dispersed in an insulating matrix. Gas evaporated Cr particles with diameters approximately 10 nm were used. Spectrophotometry in the range 0.3 < lambda 25 micron m displayed good spectral selectivity. The parameters, governing the position of lambda/sub c/ were determined. The crucial importance of the shape of the particles was documented, and, in general, increased eccentricity shifted lambda/sub c/ toward larger wavelengths. A similar shift was obtained for nonhomogeneous spheres whose dielectric core size was enlarged. DOF

#### N80-11621# Department of Energy, Washington, D. C. INTERNATIONAL COAL TECHNOLOGY SUMMARY DOCU-

Dec. 1978 113 p refs Prepared in cooperation with TRW, Inc., McLean, Va.

(Contract EX-76-C-10-3885)

(DOE/PE-0010; HCP/P3885) Avail: NTIS HC A06/MF A01

The status of coal technologies expected to be available for commercial application by 1990 is reviewed. Technologies discussed include direct combustion using flue gas desulfurization. fluidized bed combustion, gasification, liquefaction, and advanced power cycles. Coal mining and transportation are also reviewed. Social, environmental, safety, and health constraints on coal use are considered.

N80-11622# Oklahoma Univ., Norman. School of Aerospace, Mechanical and Nuclear Engineering.

#### LATERAL AND TILT WHIRL MODES OF FLEXIBLY MOUN-TED FLYWHEEL SYSTEMS

C. W. Bert and T. L. C. Chen Dec. 1978 36 p refs Presented at the 49th Shock and Vibration Symp., Washington, D. C., 17-19 Oct. 1978 Prepared for Sandia Labs. (Contract EY-76-C-04-0789)

(SAND-78-7070; OU-AMNE-78-5; Conf-7810154-1) Avail: NTIS HC A03/MF A01

High performance, composite material flywheel systems were driven by an air turbine at the Sandia Livermore spin test facility. An analysis of the systems considering six degrees of freedom was applied to two versions of a specific design.

N80-11623# Oklahoma Univ., Norman. School of Aerospace, Mechanical and Nuclear Engineering.

### WHIRLING RESPONSE AND STABILITY OF FLEXIBLY MOUNTED, RING-TYPE FLYWHEEL SYSTEMS

T. L. C. Chen and C. W. Bert Nov. 1978 122 p refs (Contract EY-76-C-04-0789)

(SAND-78-7073: OU-AMNE-78-6) Avail: NTIS HC A06/MF A01

Rim type composite material flywheels are examined. Free whirling, stability, and forced whirling are examined for these fly-wheel systems. In the free whirling analysis, predicted critical speeds are encountered in the design operating speed range. Practical ways to increase such critical speeds are suggested. Effects of material internal damping on the stability of the system are discussed.

#### N80-11624# Argonne National Lab., III.

### UNDERGROUND PUMPED HYDRO STORAGE: AN

S. W. Tam, C. A. Blomquist, and G. T. Kartsounes 1978 13 p refs. Presented at the 1st Inform. Exchange Conf., Luray, Va., 24 Oct. 1978

(Contract W-31-109-eng-38)

(CONF-781046-1) Avail: NTIS HC A02/MF A01

The status of underground pumped hydro storage (UPHS) for electric utility peaking and energy storage applications is reviewed. The salient features of major recent studies are reviewed. Turbomachinery options and advances in high head pump/turbines are discussed. The effect of head, capacity, turbomachinery unit size and type, and other performance variables on the cost of a UPHS plant are presented. Market potential, siting criteria, lower reservoir construction, and geological related issues are addressed. The environmental impact of a UPHS plant is reduced from comparable facilities, and these issues and other safety concerns are presented.

N80-11626# Williams (O. G.) and Skaggs (R. L.), Las Vegas, Nev.

### SOLAR PARABOLIC TROUGH FORMING PROCESS Final Report

O. G. Williams and R. L. Skaggs 31 May 1978 58 p refs (Grant EG-77-G-04-4158)

(ALO-4158-1) Avail: NTIS HC A04/MF A01

A new forming process is presented which exceeds an 8/1 concentration. Expanding on work previously done, many variables were investigated. Using one foot long trough samples, a high degree of slope accuracy was obtained. The forming process eliminated the need for ribs, boxes or other devices now used to maintain the parabolic shape of a solar parabolic shell. The process, in brief, involves (1) alloy aluminum; (2) moments, (3) temperature; (4) time; (5) thickness; (6) bearings; (7) flange angle bend; (8) hardness; (9) lengthwise sag; (10) material flatness; and (11) aperture control.

## N80-11627# Lincoln Lab., Mass. Inst. of Tech., Lexington. MAXIMUM POWER TRACKERS FOR PHOTOVOLTAIC ARRAYS

E. E. Landsman 1977 6 p refs Presented at the 13th IEEE Photovoltaic Specialists' Conf., Washington, D. C., 5-8 Jun. 1978

(Contract EY-76-C-02-4094)

(COO-4094-17) Avail: NTIS HC A02/MF A01

Progress is reported on the following tasks: agriculture applications; Natural Bridges National Monument, rooftop test bed; Chicago Museum of Science and Industry; data management; materials, processes, and testing, and power conditioning and handling.

N80-11628# Argonne National Lab., III. Energy and Environmental Systems Div.

DESIGN OPTIMIZATION OF AQUIFER RESERVOIR-BASED COMPRESSED AIR STORAGE SYSTEMS

Frederick W. Aherns 1978 12 p refs Presented at the Mech. and Magnetic Energy Storage Contractors' Inform. Exchange Conf., Luray, Va., 24-16 Oct. 1978

(Contract W-31-109-eng-38)

(CONF-781046-5) Avail: NTIS HC A02/MF A01

The application of a general compressed air energy storage (CAES) power system design optimization methodology to the class of CAES plants having aquifer air storage reservoirs is discussed. Performance and economic models for the aquifer reservoir, wells, piping, and air compression system are described. Identification of designs which minimize the subsystem power generation cost, while satisfying constraints related to the geology, equipment, and utility load curve are presented. The design specification resulting from the optimization procedure includes: land area to be purchased, well depth, number of wells, well spacing, wellbore diameter, main pipeline diameter, required compressor system power and discharge pressure, and required compression time durations for each day of the week.

DO

N80-11630# Gesellschaft fuer Wirtschaftliche Bautechnik m.b.H., Munich (West Germany). Inst. fuer Angewandte Bauforschung. INVESTIGATION OF THE APPLICABILITY OF TECHNICAL SYSTEMS UTILIZING SOLAR ENERGY FOR THE HEAT SUPPLY OF BUILDINGS Final Report

Josef Franz Holbl and Hannes Krack Bonn Bundesmin, fuer Forsch. u. Technol. Dec. 1978 240 p refs In GERMAN; ENGLISH summary

(Contract BMFT-ET-4056-A)

(BMFT-FB-T-78-48) Avail: NTIS HC A11/MF A01; Fachinfor-mationszentrum Energie, Phys., Math., Eggenstein-Leopoldshafen, West Ger. DM 50.40

The use of solar energy to heat German army barracks was studied. Possibilities for the installation of solar energy systems for heating water and for general heating purposes were considered. Information on available building types, their construction, and intended use, as well as climatic parameters, was compiled. Four categories were analyzed. Results indicate that energy costs can be reduced by between 40 percent to 55 percent in the case of barracks. It is recommended to install four solar heating systems, two in buildings with flat roofs and two in buildings with pitched roofs. It is intended to study the influence of roof type on heating efficiency.

Author (ESA)

N80-11631# Stockholm Univ. (Sweden). Dept. of Meteorology.

INTERACTION IN LIMITED ARRAYS OF WINDMILLS: REVIEW OF EARLIER RESULTS FROM A SIMPLE MODEL AND A PRESENTATION OF THE CAPABILITIES OF A DYNAMIC PBL MODEL

Carl Crafoord 27 Mar. 1979 57 p refs Prepared in cooperation with Intern. Meteorol. Inst.

(DM-26) Avail: NTIS HC A04/MF A01

The problem of how closely packed an array of windmills can be erected without unduly interfering with each other is considered. A general technical background for the behavior of a single windmill in a homogeneous flow, together with a list of important parameters for the general performance of a group, is given. Earlier results for neutral stratification are reviewed and presented in a slightly different manner more fully illustrating the trade-off between windmill density and mean efficiency as function of group size. The analogy between plumes and wakes as a basis for a model formulation is reviewed. Preliminary results indicate a variation in mean efficiency of 13% for a group with 80 units, which may correspond to a factor of 2.5 in area coverage. A dynamic one dimensional planetary boundary layer model is presented and redesigned for simulation experiments. Using it, the regeneration of the wind profiles behind a windmill unit is studied for different ambient conditions. Preliminary results indicate a variation of up to a factor of 9 in the rate of regeneration of the profiles. How this data might be considered in a statistical Author (ESA) analysis is discussed.

N80-11632# Austrian Solar and Space Agency, Vienna.
SOLAR ENERGY WITH LATENT HEAT STORAGE: FUNDAMENTALS AND APPLICATIONS [SONNENERGIE.

#### LATENTSPEICHER. GRUNDLAGEN AND ANWENDUN-GEN)

Oct. 1978 78 p refs in GERMAN: ENGLISH summary (ASSA-10/1978) Avail: NTIS HC A05/MF A01

Solar heating systems are examined in terms of their year-round efficiency. The desirability of storing the surplus of solar energy in summer for the heating period autumn and winter is mentioned. Possible storage schemes, such as water storage, ground storage, and latent heat storage, are examined. It is shown that water and ground as storage mediums have only small thermal storage capacity and, therefore, need large volumes. As far as latent-heat-storage is concerned, a phase-conversion (solid to liquid) is caused by the supply of heat and this process is reversed again by the withdrawal of heat. Thus, the heat is being stored in the form of conversion energy and the storage volumes become considerably lower since the energy density is much higher. Possible media for latent storage are compiled and their features described. The present state of technology is explained by illustrating applications. Economic aspects and Author (ESA) conclusions are presented.

#### N80-11633# Environmental Law Inst., Washington, D. C. SOLAR ACCESS LAW. PROTECTING ACCESS TO SUNLIGHT FOR SOLAR ENERGY SYSTEMS

Gail Boyer Hayes May 1979 173 p refs Sponsored in part by DOE

(Grant HUD-H-8213G)

(PB-296532/5) Avail: NTIS HC A08/MF A01 CSCL 10A Legal strategies to assure that owners of solar energy systems receive sunlight on their collectors are evaluated. The protection of solar access in developed urban and suburban areas is emphasized. Recommendations are made and conclusions are reached about laws and zoning and land use regulations that offer the best protection of solar rights.

N80-11634# National Field Research Center, Inc., Iowa City, lowa.

#### NATIONAL ENVIRONMENTAL/ENERGY WORKSHOP ASSESSMENT, PHASE 3. ENERGY **PROGRAMS Final Report**

Aug. 1979 106 p (Grant EPA-T-900591-03)

(PB-298587/7; EPA-600/8-79-023H) NTIS Avail: HC A06/MF A01; also available in set of 18 reports PC E99, PB-298579-SET CSCL 051

In addition to well-established programs in nuclear engineering, mining, petroleum and natural gas technology and engineering, there are programs in energy conversion, energy engineering and policy, energy conversion and resources, energy resources management, and several others which represent recent innovative approaches to the broad spectrum of energy problems.

N80-11639# Brookhaven National Lab., Upton, N. Y. Process, Sciences Div.

### **ENVIRONMENTAL CONTROL TECHNOLOGY FOR CARBON**

Meyer Steinberg, A. S. Albanese, and Vi-Duong Dang 1978 36 p refs Presented at the 71st Ann. Meeting of the Am. Inst. of Chem. Engr., Miami, Fla., 12-16 Nov. 1978 (Contract EY-76-C-02-0016)

Conf-781110-10) Avail: (BNL-24999; NTIS

HC A03/MF A01

Routes for removal, recovery, disposal, and reuse of CO2 from various control points in the global system are reviewed. The energy and mass balances for various routes are used as a criteria for evaluation. Alternative energy sources are assessed as a means of control.

#### N80-11641# Los Alamos Scientific Lab., N. Mex. ENERGY DEVELOPMENT VS WATER QUALITY IN THE UPPER COLORADO AND UPPER MISSOURI RIVER RASINS

A. B. Bishop, S. L. Klemetson, M. F. Torpy, and M. McKee Oct. 1978 84 p refs

(Contract W-7405-eng-36) (LA-7497-MS) Avail: NTIS HC A05/MF A01

Impacts from energy developments are discussed in terms of the various pollutants generated by energy extraction and processing activities, and the pollution transport mechanisms and pathways by which they can enter surface and groundwater. The implications for energy development of the water quality aspects of legislative requirements and regulations are discussed. Many of the potential water pollution problems associated with energy development will occur through the transport of pollutants from air pollution and solid waste disposal. The consumptive use of all water withdrawn for energy processing as a pollution control measure raises three important issues-each of which represents a potential conflict between energy developers compliance with the legislation and western water law: (1) junior rights and water transfer, (2) the beneficial use question, and (3) the reasonable use measure of certain water quality practices. DOE

#### N80-11647# IEA Coal Research, London (England). HOT GAS CLEANUP

G. F. Morrison Mar. 1979 53 p refs

NTIS (ICTIS/TR-03; ISBN-92-9029-017-X) Avail: HC A04/MF A01

The current technological status of hot gas cleanup systems for cleaning gases from coal gasifiers or fluidized bed combustors prior to their use in combined cycle power generating systems is reviewed. Self contained cleanup systems which can be applied to various gasifiers or combustors are emphasized. Contaminants in the gas stream are identified as sulphur compounds, particulates, nitrogen compounds, and trace elements. Hot gas desulphurization processes are classified according to the sorbent on which they are based (iron oxide or calcium). Particulate removal is subdivided according to the separation technique. Cyclones, surface and depth filters, and electrostatic precipitators are covered.

Author (ESA)

N80-11656# Acurex Corp., Mountain View, Calif. Energy and Environmental Div.

#### TECHNICAL ASSESSMENT OF THERMAL DONOX PROCESS Final Report, Nov. 1977 - Dec. 1978

C. Castaldini, K. G. Salvesen, and H. B. Mason May 1979 138 p

(Contract EPA-68-02-2611)

(PB-297947/4; EPA-600/7-79-117) Avail: NTIS HC A07/MF A01 CSCL 13B

The thermal deNOx process applied to coal fired utility boilers is assessed. It is concluded that the process is a promising technique for controlling NOx emissions. However, flue gas temperature fluctuations may limit NOx reductions to approximately 50%. In addition, operational and environmental impacts of NH3 emissions and ammonium bisulfate formation could further limit the performance of the process and effect is applicability. Costs depend primarily on boiler size, initial NOx concentration, and level of control required. The impact of widespread process implementation on the ammonia market, feedstock supplies, and their costs are considered and found to

N80-11670# National Field Research Center, Inc., Iowa City,

#### NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT, PHASE 3. AIR PROGRAMS Final Report Aug. 1979 39 p

(Grant EPA-T-900591-03)

(PB-298580/2; EPA-600/8-79-023A) HC A03/MF A01; also available in set of 18 reports PC E99, PB-298579-SET CSCL 051

Information on post-secondary environmental education programs in the United States is provided. Structured around information requests mailed to post-secondary education institutions, the directory provides the name and address of each institution listed, a contact person at each institution, the academic program title, and the degree offered at the institution (2-year, 4-year, etc.) Twelve such directories of post-secondary programs include: one each for air, noise, pesticides and toxicology,

potable water, wastewater, radiation, solid waste, and energy; one for combined water/wastewater programs; and a composite volume on each of the three areas of environmental engineering/technology, environmental science/health, and environmental studies.

GRA

N80-11711# California Univ., Riverside. Inst. of Geophysics and Planetary Physics.

SEISMIC REFRACTION INVESTIGATION OF THE SALTON SEA GEOTHERMAL AREA, IMPERIAL VALLEY, CALIFORNIA M.S. Thesis

Robert Frith Bruce Dec. 1978 106 p refs

(Grant NSF AER-72-03551)

(PB-296547/3; UCR/IGPP-78/19; NSF/RA-780511) Avail: NTIS HC A06/MF A01 CSCL 08G

Seven seismic refraction profiles and four long refraction shots were used to investigate the Salton Sea geothermal in preparation for energy resource development. From the data, two models of the geothermal and adjacent area were proposed.

## N80-11747\*# Battelle Columbus Labs., Ohio. PRELIMINARY ASSESSMENT OF INDUSTRIAL NEEDS FOR AN ADVANCED OCEAN TECHNOLOGY

A. G. Mourad, K. M. Maher, J. E. Balon, A. G. Coyle, and J. A. Henkener 15 Oct. 1979 59 p refs

(Contract NASw-2800)

(NASA-CR-162435; BCL-OA-TFR-79-4) Avail: NTIS HC A04/MF A01 CSCL 08C

A quick-look review of selected ocean industries is presented for the purpose of providing NASA OSTA with an assessment of technology needs and market potential. The size and growth potential, needs and problem areas, technology presently used and its suppliers, are given for industries involved in deep ocean mining, petrochemicals ocean energy conversion. Supporting services such as ocean bottom surveying; underwater transportation, data collection, and work systems; and inspection and diving services are included. Examples of key problem areas that are amenable to advanced technology solutions are included. Major companies are listed.

A.R.H.

# N80-11889# Los Alamos Scientific Lab., N. Mex. GENERAL-PURPOSE HEAT SOURCE PROJECT SPACE NUCLEAR SAFETY PROGRAM AND RADIOISOTOPIC TERRESTRIAL SAFETY PROGRAM Progress Report

R. D. Baker, comp. Sep. 1978 55 p (Contract W-7405-eng-36)

(LA-7519-PR) Avail: NTIS HC A04/MF A01

Studies related to the use of (Pu-238)O2 in radioisotopic power systems are reported. DOE

N80-11891# Technical Research Centre of Finland, Espoo.
EVALUATION OF NUCLEAR POWER PLANT SITING BY
PROBABILISTIC ASSESSMENT OF ENVIRONMENTAL
IMPACT Ph.D. Thesis - Helsinki Univ., Otaniemi, Finland

Seppo Vuori 1978 20 p refs

(VTT-EN-24; ISBN-951-38-0704-5)

Avail: NTI

HC A02/MF A01

A probabilistic consequence assessment model ARANO and the individual calculation schemes therein included are described. This assessment model was applied to the risk/benefit and cost/benefit analyses of the siting of nuclear power plants. In addition, some comparisons with alternative fossil-fuelled energy production scenarios are made. Results indicate the model gives useful data in these applications.

Author (ESA)

# N80-11935# Braun (C. F.) and Co., Alhambra, Calif. EXPERIMENTAL ENTHALPIES FOR A MIXTURE OF 80 MOLE PERCENT ISOBUTANE IN ISOPENTANE Final Report

C. R. Koppany and J. M. Lenoir Mar. 1979 52 p refs Sponsored by Electric Power Research Inst.

(EPRI Proj. 928-4)

(EPRI-ER-1034) Avail: NTIS HC A04/MF A01

Seven enthalpy isobars were measured for a nominal mixture of 80% isobutane/20% isopentane. A phase envelope was constructed for use in the design of a turbine expander and the heat exchangers for a geothermal power plant. The dew point values for the phase envelope are discussed for the region near the critical.

N80-11941# Ohio Public Utilities Commission, Columbus.
DEMAND MANAGEMENT DEMONSTRATION PROJECT.
STAGE 1: DEVELOPMENT OF RESIDENTIAL LOAD
CHARACTERISTICS. STAGE 4: DEMONSTRATION OF
RESIDENTIAL INCREMENTAL COST PRICING IMPLEMENTED BY TIME-OF-DAY METERING Final Report, Jan.
1979

Apr. 1979 144 p

(Contract EC-75-F-01-8072)

(HCP/B8072-01) Avail: NTIS HC.A07/MF A01

Several load-management technologies were used in order to gather data necessary for further implementation, gain insight into customer reactions to the various techniques studied, and develop the computer codes necessary to process such data. The results are consistent with economic theory and will contribute to the further development of effective pricing structures for electricity. The customers on the time-of-day rate responded by reducing their peak-period consumption significantly below that of comparable control-group customers. Total energy use by customers in the pricing group declined about 3.5%. Customers in the time-of-use and radio-controlled groups reacted favorably to the techniques.

N80-11946# California Univ., Berkeley. Lawrence Berkeley Lab.

#### A MANUAL FOR CATALOGING AND INDEXING DOCU-MENTS

S. R. Schwartz, S. L. Phillips, and J. J. Perra  $\,$  Jul. 1978  $\,$  85  $\,$  p  $\,$  refs  $\,$  Revised  $\,$ 

(Contract W-7405-eng-48)

(LBL-4432-Rev-1) Avail: NTIS HC A05/MF A01

The descriptive cataloging and subject indexing rules and methodology needed to process bibliographic information for the National Geothermal Information (GRID) database storage are documented. Data elements which may appear in a bibliographic record are tabulated. Examples of coded data entry forms are included in an appendix. Examples are given of unit records in the database corresponding to one bibliographic reference. DOE

## N80-11954\*# Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena. A SURVEY OF ELECTRIC AND HYBRID VEHICLE SIMULATION PROGRAMS Final Report

J. Bevan, D. A. Heimburger, and M. A. Metcalfe Nov. 1978 110 p refs

(Contract EC-77-A-31-1011)

(NASA-CR-162457; HCP/M1011-04)

HC A06/MF A01 CSCL 13F

Results of a survey conducted within the United States to determine the extent of development and capabilities of automotive performance simulation programs suitable for electric and hybrid vehicle studies are summarized. Altogether, 111 programs were identified as being in a usable state. The complexity of the existing programs spans a range from a page of simple desktop calculator instructions to 300,000 lines of a high-level programming language. The capability to simulate electric vehicles was most common, heat-engines second, and hybrid vehicles least common. Batch-operated programs are slightly more common than interactive ones, and one-third can be operated in either mode. The most commonly used language was FORTRAN, the language typically used by engineers. The higher-level simulation languages (e.g. SIMSCRIPT, GPSS, SIMULA) used by 'model builders' were conspicuously lacking.

DOE

NTIS

Avail:

N80-11965# Georgia Inst. of Tech., Atlanta. Engineering Experiment Station.

SOUTHEASTERN FORUM ON APPROPRIATE TECHNOLOGY Final Report

Jeffrey S. Tiller, David S. Clifton, Jr., and Robert A. Cassanova Apr. 1979 98 p Conf. held at Atlanta, Ga., 17-18 Sep. 1978 (Grant NSF ISP-78-22994)

(PB-298796/4; GIT-B-519-F; NSF/RA-790007) Avail: NTIS HC A05/MF A01 CSCL 05A

The background and purpose of the forum are described as well as its structure and agenda. Results of the forum are presented and a strategy is proposed for NSF to follow in an appropriate technology program. The specific appropriate technologies that participants believed had the greatest potential for widespread implementation were passive solar energy, cooperative community projects, waterless toilets, an AT extension service, active solar equipment, utilization of local material and human resources in energy, resource recovery plants, conversion of biomass to fuel, recycling centers, techniques for passive and active space cooling, photovoltaics and marketing cooperatives for small farms. GRA

#### N80-11991# Technical Research Centre of Finland, Espoo. [REPORT ON FINNISH TECHNOLOGICAL ACTIVITIES] Annual Report, 1978

1979 35 p Original contains color illustrations

Avail: NTIS HC A03/MF A01

Results of research and test programs in building, community, materials, processing, energy, and information processing technologies are reported. Specific topics covered include heat economy of buildings, road friction, plastics, lubricants, ceramics, metallic materials and metal production, biotechnology, food science, mineralogy, and measurement of impurities in flue gases. Other areas discussed include graphical processes, mechanical wood handling, ship building, nuclear engineering, measurement of electrical quantities, and data processing and transmission.

NTIS

Avail:

N80-12106\*# Rockwell International Corp., Downey, Calif. Space Div.

#### SATELLITE POWER SYSTEMS (SPS) CONCEPT DEFINITION STUDY. VOLUME 4: SPS POINT DESIGN DEFINITION Final Report

G. Hanley Apr. 1978 220 p 5 Vol.

(Contract NAS8-32475)

(NASA-CR-150683; SD-78-AP-0023-4-Vol-4) Avail: NTIS HC A10/MF A01 CSCL 22B

The satellite power systems point design concept is described. The concept definition includes satellite, ground and space systems, and their relationships. Emphasis is placed on the definition of the GaAlAs photovoltaic satellite system. The major subsystems of the satellite system including power conversion, power distribution and control, microwave, attitude control and stationkeeping, thermal control, structures, and information management and control are discussed. AWH

N80-12147# Hanford Engineering Development Lab., Richland, Wash.

#### MATERIALS COMPATIBILITY IN LIQUID SODIUM

W. F. Brehm Aug. 1978 38 p refs Presented at NACE Conf., Denver, Colo., 3 Oct. 1978 (Contract EY-76-C-14-2170)

(HEDL-SA-1559:

Conf-781071-2)

HC A03/MF A01

The types and rates of reaction of sodium with reactor materials are presented. Confident predictions on the corrosion hehavior for steel in sodium were obtained. Deposition phenomena are not well defined, at least with respect to establishing quantitative correlation. The potential uses of liquid metal heat transfer systems in energy conversion systems other than nuclear reactors were considered. DOE

N80-12163# International Nickel Co., Inc., Suffern, N. Y. Inco Research and Development Center.

EVALUATION OF HIGH CHROMIUM OVERPLAYS TO PROTECT LESS ALLOYED SUBSTRATES FROM CORRO-SION IN A COAL GASIFICATION ATMOSPHERE Quarterly Report, 1 Mar. - 31 May 1978

E. P. Sadowski 1978 32 p (Contract EF-77-C-01-2621)

(FE-2621-3) Avail: NTIS HC A03/MF A01

Three-quarters of the welding is complete and pre-exposure testing started on one-half of the completed weldments in this program to produce overlays resistant to corrosion in coal gasification atmospheres at 982 C. The welding processes were: submerged-arc, gas metal-arc and gas tungsten-arc with a hot wire addition. Pre-exposure testing was continued. The tests consisted of hardness surveys, bend, tensile, stress-rupture, bulk chemical analysis of the overlay and microprobe analysis for the distribution of major alloying elements from the outside edge of the overlay to the center of the base plate. The results are described. DOF

#### N80-12188 Utah Univ., Salt Lake City,

#### ELUCIDATION OF COAL STRUCTURAL COMPONENTS BY SHORT RESIDENCE-TIME EXTRACTIVE LIQUEFACTION Ph.D. Thesis

Doonee Kang 1979 202 p

Avail: Univ. Microfilms Order No. 7925040

Short contact time thermal reactions of bituminous coals with tetralin in hydrogen atmosphere were studied to ascertain the nature of the reaction such as the mechanism of the coal liquefaction process, the labile functional structures in the coal and the products, the hydrogen transfer reactions between coal and tetralin, and the kinetics of coal conversion. Yield and kinetic data indicated reaction paths of the coal conversion. A hybrid kinetic model containg first and second order rate equations was developed and tested for the data. Dissert. Abstr.

N80-12189# Toronto Univ. (Ontario). Inst. for Aerospace Studies.

#### THE FUTURE ROLE OF HYDROGEN FUEL IN AN ELECTRI-CAL SOCIETY

Gordon N. Patterson Oct. 1979 30 p refs

(UTIAS-241; CN-ISSN-0082-5255)

HC A02/MF A01

Avail: NTIS

The manufacture, storage, and use of hydrogen for peakshaving purposes, vehicular power plants, and as a chemical raw material are discussed and programs for future development are indicated. It is concluded that plans for the future use of hydrogen on a large scale should be initiated now. MMM

N80-12191# Texaco, Inc., El Monte, Calif. Montebello Research

#### GASIFICATION OF RESIDUAL MATERIALS FROM COAL LIQUEFACTION. EVALUATION OF SRC 2 VACUUM FLASH DRUM BOTTOMS FROM POWHATAN COAL AS A FEEDSTOCK FOR THE TEXACO GASIFICATION PROC-**ESSES**

A. M. Robin Mar. 1979 10 p (Contract EX-76-C-01-2247)

(FE-2247-2) Avail: NTIS HC A02/MF A01

A 20 pound sample of vacuum flash drum bottoms, obtained from the liquefaction of Powhatan coal, was judged to be a suitable feedstock for a synthesis gas generation process. It can be charged directly to the gasifier at a temperature of about 615 F. The material is too viscous to be pumped with the pilot plant equipment, however, which is capable of maintaining a temperature of only 515 F. The addition of 3 to 5 percent cutter is required for the pilot plant tests. No cutter is required for a commercial plant. Based on these results, operating conditions and yields were estimated for gasifying 1000 pounds per hour of molten undiluted residue at 350 psig. A Type 2 preliminary pilot plant evaluation is planned. DOE

N80-12192# Babcock and Wilcox Co., Alliance, Ohio. Research **Development Div** 

#### **CHARACTERIZATION AND COMBUSTION OF SRC 2 FUEL** OIL Final Report

W. Downs and A. J. Kubasco Jun. 1979 131 p refs (EPRI-FP-1028) Avail: NTIS HC A07/MF A01

An industrial boiler rated at a steam flow of 45,000 lbs/hr was used for combustion tests of solvent refined coal (SRC) fuel oil. No. 2 fuel oil, and No. 5 fuel oil. Operating variables included

load, excess air, and burner register settings. The laboratory fuel analyses indicates that in most respects this SRC fuel oil sample behaved similarly to No. 2 fuel oil. The combustion test confirms that SRC fuel oil burns similarly to No. 2 fuel oil with one notable exception. NO/sub x/ emissions were substantially higher than for either the No. 2 or No. 5 fuel oils. The SRC fuel oil will require the application of NO/sub x/ combustion control techniques to meet the proposed New Source Performance Standards of 0.5 pound NO2/million Btu when burned in power boilers equipped with wall-mounted burners.

#### N80-12197# Los Alamos Scientific Lab., N. Mex. LASL THERMOCHEMICAL HYDROGEN PROGRAM STATUS ON OCTOBER 31, 1978

K. E. Cox and M. G. Bowman 31 Oct. 1978 9 p refs Presented at Chem. Hydrogen Energy Systems Contracts Rev., Washington, D.C., 28 Nov. 1978 (Contract W-7405-eng-36)

(LA-UR-78-2895; CONF-781142-4) HC A02/MF A01

DOF

Progress is reported in developing an efficient and economical thermochemical cycle for the production of hydrogen from water utilizing thermal energy sources that become available. Topics covered include: (1) continuing experiments in sulfate decomposition, sulfate formation, and hydrogen iodide electrolysis; (2) fusion-synfuel study (hydrogen); and (3) evaluation of

thermochemical cycles.

N80-12198# Oklahoma State Univ., Stillwater.

CHARACTERIZATION OF COAL-DERIVED LIQUIDS AND OTHER FOSSIL FUEL RELATED MATERIALS EMPLOYING MASS SPECTROMETRY. MASS SPECTROMETRY AND FOSSIL-ENERGY CONVERSION TECHNOLOGY: A REVIEW Quarterly Report, 30 Mar. - 29 Jun. 1978

S. E. Scheppele 1978 141 p

(FE-2537-7) Avail: NTIS HC A07/MF A01

The following activities in regard to the development of micromolecular probe distillation in combination with fieldionization mass spectrometry (FI/MS) for quantitative analysis are reported. The temperature-control module for the directintroduction probe was received and successfully interfaced to both the probe and the NOVA 3/12. Both temperatures and FI/MS data were minicomputer acquired for probe distillation of a 19 component synthetic blend, an asphaltene-acid fraction, and the base fraction from an anthracene-oil sample. The acquired temperatures and FI/MS data for the 19 component blend were processed on the IBM 370/158 to obtain a quantitative distribution which is in excellent agreement with both the known composition and the one obtained from the FI/MS data acquired using the batch-inlet system for sample introduction. Development of algorithms for correlating the acquired temperatures with the acquired FI/MS data using the NOVA 3/12 and for preparing the correlated data for remote job entry to the IBM 370/158 were initiated. DOF

## N80-12199# Institute of Gas Technology, Chicago, III. STATUS OF THE PEATGAS PROCESS

D. V. Punwani 1978 30 p refs Presented at Syn. Pipeline Gas Symp., Chicago, 30 Oct. 1978 (Contract EX-76-C-01-2469)

(CONF-781045-3) Avail: NTIS HC A03/MF A01

PDU-scale tests were conducted to determine the effects of initial scale-up from the laboratory-scale equipment. The hydrogasification PDU represents a scale-up of about 250 times the laboratory-scale hydrogasifier. The tests in the laboratory-scale equipment were conducted with hydrogen and/or helium, whereas the tests in the PDU were conducted with hydrogen, steam-hydrogen, and synthesis gas. The PDU test results are in very good agreement with the results obtained in the laboratoryscale equipment. A mathematical model describing the kinetics was developed for the PEATGAS Process. A complete process design has been prepared for a preliminary base case for producing 250 x 10 to the ninth power Btu/day of SNG from the Minnesota peat (containing 50 percent moisture content). The plant thermal efficiency of this process is estimated to be 67 percent. Process economics for the completed base-case process design as well as several modified designs are evaluated.

N80-12200# Institute of Gas Technology, Chicago, III. HYGAS PROCESS UPDATE
W. G. Bair 1978 20 p refs Presented at Syn. Pipeline Gas

Symp., Chicago, 30 Oct. 1978 (Contract EX-76-C-01-2434)

(CONF-781045-4) Avail: NTIS HC A02/MF A01

Nine tests with Illinois No. 6 Seam coal from the Peabody No. 10 mine were completed at 900 and 500 psig with char conversions reaching 90%, and sinter-free gasifier conditions were achieved at both pressure levels. Fines elutriation was studied and a method of identifying fines sources is being developed so that higher percentages of the char fed to the reactor can be gasified. In addition, the steam--oxygen distributor in the steam--oxygen gasifier zone of the reactor was successfully modified to improve the gasifier's ability to achieve high char conversions under sinter-free conditions. All of these activities and the data obtained through them contributed to improving the data base from which a successful commercial/demonstration plant can be designed.

N80-12201# California Univ., Livermore. Lawrence Livermore Lab

#### ENVIRONMENTAL ASPECTS OF ALTERNATIVE FUELS UTILIZATION FOR HIGHWAY VEHICLES

C. J. Anderson 25 Oct. 1978 16 p refs Presented at Environ. Control Symp., Washington, D.C., 28 Nov. 1978 (Contract W-7405-eng-48)

(UCRL-81841: CONF-781109-22)

Avail.

HC A02/MF A01

Non-petroleum-derived transportation fuels being considered are derived from coal, oil shale, and biomass. The resultant synthetic liquid hydrocarbon fuels may or may not be identical to those derived from petroleum; the alcohols and hydrogen are certainly quite different. A number of environmental issues related to the alternative fuels utilization program are described as well as some of the various projects undertaken to resolve these issues. The accomplishments of these programs are emphasized (in some ways some of these fuels may be superior to existing fuels) and needs for further work are identified.

#### N80-12202# Dynatech Corp., Cambridge, Mass. COST ANALYSIS OF AQUATIC BIOMASS SYSTEMS

25 Jul. 1978 268 p refs (Contract EG-77-C-01-4000)

(HCP/ET/4000-78/1) Avail: NTIS HC A12/MF A01

A cost analysis was conducted to provide the U.S. Department of Energy with engineering cost information on which to base decisions in the area of planning and executing research and development programs dealing with aquatic biomass as an alternative energy resource. Calculations show that several hundred 100 square mile aquatic biomass farms, the size selected for this analysis, would be needed to provide meaningful supplies of energy. It was found that the projections of costs for harvested open-ocean biomass, utilizing optimistic assumptions of scientific and engineering design parameters, appear to be above any practical costs to be considered for energy. One of the major limitations is due to the need to provide upwelled sub-surface water containing needed nutrients, for which pumping energy is required. It is concluded that large scale land-based aquatic biomass farms may merit development, but perhaps within a much narrower range than investigated. Aquatic plants which appear to have potential for development as an energy resource are the so-called emersed plants, or angiosperms, including many types of freshwater weeds such as duckweed, Hydrilla, and water hvacinths.

N80-12204# TRW, Inc., Redondo Beach, Calif. ENVIRONMENTAL ASSESSMENT REPORT: LURGI COAL GASIFICATION SYSTEMS FOR SNG Final Report, May 1978 - Apr. 1979

M. Ghassemi, K. Crawford, and S. Quinlivan May 1979 344 p. refs

(Contract EPA-68-02-2635)

(PB-298109/0; EPA-600/7-79-120) Avail: NTIS

HC A15/MF A01 CSCL 21D

A compilation and analysis of data on the equipment and processes consituting the Lurgi Substitute Natural Gas (SNG) systems, the control/disposal alternatives for a media, the performance and cost of control alternatives, and present and proposed environmental requirements are presented. Data are provided on the characteristics of input materials, products, and waste streams associated with each process. Pollution control alternatives for air emissions, water effluents, solid wastes, and toxic substances in an integrated facility were examined for performance, costs, energy requirements, and ability to comply with current and anticipated environmental standards. GRA

N80-12291# Gutehoffnungshuette Sterkrade A.G. Oberhausen (West Germany).

## ELECTRIC POWER GENERATION AND LNG EVAPORATION WITH THE AID OF GAS TURBINES WITHIN A CLOSED-CYCLE PROCESS

D. Weber 1978 19 p refs In GERMAN Presented at Systems Exhibition Energy - Hanover Fair, Hanover, 19 Apr. 1978

(AED-Conf-78-155-010; CONF-7804102-6) Avail: NTIS (US Sales Only) HC A02/MF A01; DOE Depository Libraries

In the proposed process the working fluid of a gas turbine plant with a closed circuit is cooled to -140 C with LNG before entering the compressor and heated to +720 C before entering the turbine by means of external heat gained by burning natural gas. With a 1 million cubic m/h throughput of LNG in its normal state, 237 MW of electric power can be generated with 53 percent efficiency with this simple circuit, which can be further developed. In a combination of closed gas turbine and diesel generator, almost 289 MW of electric power can be produced per 1 million cubic m/h LNG with an efficiency of 60 percent.

DOE

N80-12300# National Bureau of Standards, Washington, D.C. Electron Devices Div.

#### MEASUREMENT TECHNIQUES FOR HIGH-POWER SEMI-CONDUCTOR MATERIALS AND DEVICES: Annual Report, 1 Oct. 1977 - 30 Sep. 1978

Frank F. Oettinger Jun. 1979 146 p refs

(Contract EA-77-A-01-6010)

(PB-298574/5; NBSIR-79-1756) HC A07/MF A01 CSCL 09A

79-1756) Avail: NTIS

The development of measurement methods for semiconductor materials and devices which will lead to more effective use of high power semiconductor devices in applications for energy technologies is described. The major tasks are: (1) to evaluate the use of thermally stimulated current and capacitance measurements and other deep level measurement techniques as a means for characterizing lifetime controlling or leakage source defects in power grade silicon material and devices; and (2) to develop procedures to enable spreading resistance measurements of thyristor starting material and layer profiles to be made on a reliable basis.

N80-12338# Von Karman Inst. for Fluid Dynamics, Rhode-Saint-Genese (Belgium).

### FLUID DYNAMICS OF POROUS MEDIA IN ENERGY APPLICATIONS, VOLUME 1

1979 433 p Lecture held at Rhode-Saint-Genese, Belgium, 12-16 Feb. 1979

(VKI-Lec-Ser-1979-4-Vol-1) Avail: NTIS HC A19/MF A01

The use of porous media in connection with energy storage or exchange is considered. Heat storage and transfer in packed beds, regenerators, moving bed heat exchangers, and natural convection in porous media are among the topics covered. Application to geothermics and solar energy is emphasized.

N80-12340# Michigan Univ., Ann Arbor. Heat Transfer Lab. SURVEY AND DESCRIPTION OF TRANSPORT PHENOMENA IN PACKED-BEDS

John A. Clark *In Von Karman Inst. for Fluid Dyn. Fluid Dyn.* of Porous Media in Energy Appl., Vol. 1 1979 p 1-21 refs

Avail: NTIS HC A19/MF A01

A brief review of the literature pertaining to transport properties in packed beds, particulary as they apply to storage of thermal energy derived from solar energy conversion systems, is presented. Geometric and design parameters that influence the thermal and flow performance of a packed bed are discussed along with analytical models established to simulate the dynamic behavior of the bed. Single and two phase models are included.

#### N80-12341# Michigan Univ., Ann Arbor. Heat Transfer Lab. DYNAMIC RESPONSE OF A PACKED-BED ENERGY STORAGE SYSTEM TO A TIME VARYING INLET TEMPERA-TURE

In Von Karman Inst. for Fluid Dyn. Fluid Dyn. of Porous Media in Energy Appl., Vol. 1 1979 p 1-7 refs

Avail: NTIS HC A19/MF A01

An analytical method for determining the response of a rock-bed energy storage system to temperature variations is outlined. Emphasis is on the case in which the inlet air temperature feeding the bed varies arbitrarily with time, a condition commonly expected in a solar energy supply system.

J.M.S.

N80-12342# Michigan Univ., Ann Arbor. Dept. of Mechanical Engineering.

### HEAT STORAGE AND THERMAL TRANSFER ASPECTS OF THE DYNAMIC BEHAVIOUR OF A PACKED BED

John A. Clark and Ronald L. Nabozny *In* von Karman Inst. for Fluid Dyn. Fluid Dyn. of Porous Media in Energy Appl., Vol. 1 1979 p 1-12 refs

Avail: NTIS HC A19/MF A01

The formulation of the dynamic response and thermal storage capacity of a packed bed storage unit for solar energy application is outlined for both the charging and recovery modes. Owing to the limitations of analytical procedures, the solutions to this problem are given in terms of an implicit, finite difference numerical formulation. The computer program for this solution is called ROCKBED. Comparison between the numerical results and those from experiment indicate the importance of improved knowledge of certain empirical data for pack beds, including heat transfer coefficients, effective particle size, void fraction, and wetted area per unit volume.

N80-12346# Von Karman Inst. for Fluid Dynamics, Rhode-Saint-Genese (Belgium).

## FLUID DYNAMICS OF POROUS MEDIA IN ENERGY APPLICATIONS, VOLUME 2

1979 402 p refs Lecture held at Rhode-Saint-Genese, Belgium, 12-16 Feb. 1979 (VKI-Lec-Ser-1979-4-Vol-2) Avail: NTIS HC A18/MF A01

(VKI-Lec-Ser-1979-4-Vol-2) Avail: NTIS HC A18/MF A01 Topics are presented on heat exchangers, heat exchange processes, the post accident heat removal from a liquid metal fast breeder reactor, the influence of an obstruction on a fluid particle heat transfer, a fluorescence method for the local voidage in random packed beds, and the application of packed beds to energy storage use of latent heat of fusion.

N80-12353# Von Karman Inst. for Fluid Dynamics, Rhode-Saint-Genese (Belgium).

### APPLICATION OF PACKED BEDS TO ENERGY STORAGE USE OF LATENT HEAT OF FUSION

J.-M. Buchlin and P. H. Theunissen In Von Karman Inst. for Fluid Dyn. Fluid Dyn. of Porous Media in Energy Appl., Vol. 2 1979 15 p refs

Avail: NTIS HC A18/MF A01

A design of thermal storage unit based on the use of latent heat in packed beds is presented. A theoretical model is described of the unsteady heat transfer in such pile where the particles are formed by heat of fusion material incapsulated in spherical containers. The temperature distributions of the circulating fluid and of the phase change material as well as the rate of melting are obtained by numerical procedure. The theoretical predictions are validated in comparison with experimental results. M.M.M.

N80-12538\*# Bendix Corp., Englewood, Colo. Energy. Environment and Technology Office.

AUTOMATED LONGWALL GUIDANCE AND CONTROL SYSTEMS, PHASE 1

S. C. Rybak 6 Sep. 1978 410 p Sponsored in part by DOE (Contract NAS8-32921)

(NASA-CR-161329) Avail: NTIS HC A18/MF A01 CSCL

Candidate vertical control systems (VCS) and face advancement systems (FAS) required to satisfactorily automate the longwall system were analyzed and simulated in order to develop an overall longwall system configuration for preliminary design.

N80-12539\*# Bendix Corp., Englewood, Colo. Energy, Environment and Technology Office.

AUTOMATED LONGWALL GUIDANCE AND CONTROL SYSTEM 8, PHASE 2, PART 2: VERTICAL CONTROL SYSTEM (VCS) Final Report

5 Apr. 1979 196 p Sponsored in part by DOE (Contract NAS8-32921)

(NASA-CR-161330) Avail: NTIS HC A09/MF A01 CSCL 081

The prototype preliminary design of the vertical control system (VCS) of the 'automated longwall guidance and control system' is presented.

N80-12540\*# Bendix Corp., Englewood, Colo.

AUTOMATED LONGWALL GUIDANCE AND CONTROL SYSTEMS, PHASE 2, PART 2: RCS, FAS, AND MCS Final

15 Jun. 1979 315 p Sponsored in part by DOE

(Contract NAS8-32921)

(NASA-CR-161331) Avail: NTIS HC A14/MF A01 CSCL 180

The prototype preliminary design of the face advancement system (FAS) consisting of the yaw alignment system (YAS) and the roll control system (RCS), and the master control station (MCS) is outlined. RES

N80-12542# Department of Energy, Washington, D. C. Energy Information Administration.

**IDENTIFICATION OF A METHODOLOGY FOR PROJECTING** SHORT-TERM CRUDE PETROLEUM PRODUCTION IN THE UNITED STATES

N. D. Uri Dec. 1978 35 p (DOE/EIA-0103/14) Avail: NTIS HC A03/MF A01

Box-Jenkins time series analysis is applied to state level monthly crude petroleum production data to forecast monthly production for 1978. Beyond supplying the requisite forecasts, the model is used to investigate the overall efficacy of the approach. The results indicate that the technique emulates past behavior. Further, for the aggregate United States, production is expected to be 0.65 percent above the level observed in the base period of July 1976 - June 1977 primarily due to a large anticipated growth in California production.

N80-12543# Sandia Labs., Albuquerque, N. Mex. GEO Energy Technology Dept.

OVERVIEW OF IN SITU OIL SHALE TECHNOLOGY AND RECENT ADVANCES IN TRUE IN SITU RETORT MODEL-

C. E. Tyner 1979 11 p refs Presented at the 14th Intersoc. Energy Conversion Conf., Boston, 5 Aug. 1979 (Contract EY-76-C-04-0789)

(SAND-78-2367C; CONF-790803-08) Avail: NTIS HC A02/MF A01

In view of current liquid fuel shortages, development of the oil shale resources of Colorado, Utah, and Wyoming, estimated to contain more than one trillion barrels of oil equivalent, is considered. The in situ processing of this resource offers a

potentially attractive alternative, both economically and environmentally, to surface processing. True and modified in situ retorting technologies are described and current research in these areas briefly outlined. True in situ and related low-void in situ processes would minimize the mining and materials handling problems associated with other technologies. A comprehensive mathematical model developed to describe the retorting process in these beds is presented. Use of the model to investigate the effect of various retort geometries and bed conditions on the oil yield from true in situ and low-void in situ retorts is discussed. DOE

N80-12544# Oak Ridge Associated Universities, Tenn. for Energy Analysis.

SHALE OIL: US AND WORLD RESOURCES AND PROS-PECTS FOR NEAR-TERM COMMERCIALIZATION IN THE UNITED STATES

G. Marland Mar. 1979 59 p refs (Contract EY-76-C-05-0033)

(ORAU/IEA-79-8(R)) Avail: NTIS HC A04/MF A01

Although the United States has large resources of shale oil, several decades of development effort have yet to result in a viable industry. Because both the cost of the oil and the environmental impact of its production are not well known and seem to remain perennially at the margin of acceptability, the matter of commercialization has become a political issue. A variety of economic incentives and government programs to encourage commercial development have been proposed - some implemented - and several industrial corporations are proceeding cautiously. Conflicting political, economic, and environmental views, however, continue to preclude a decisive commitment, and it does not appear at this time that significant quantities of shale oil will be avaiable in the next decade, or probably even longer.

N80-12548 Carnegie-Mellon Univ., Pittsburgh, Pa. FOAM SOLAR SEA POWER: A PHYSICAL INVESTIGATION Ph.D. Thesis

Martin Greenstein 1979 151 p Avail: Univ. Microfilms Order No. 7925016

A 30 foot high, 4 in diameter column of glass pipe was constructed. Apparatus to generate a stable fresh water foam was developed and installed at the bottom of the column. An alcohol drip was found to effectively break foam. This, along with a spray condenser, was installed at the column top. Noncondensible gases were removed from the system by a vacuum pump. Water at 25 C, injected into the bottom of the column, was converted to a foam which flowed towards the 5 C condenser. This flow was found to have a dissipative loss similar to that of laminar flow of liquids in pipes. It was concluded that flow losses should not prevent the successful construction of a scaled-up foam solar sea power plant. Dissert. Abstr.

N80-12550# Committee on Science and Technology (U. S.

INVENTORY OF ADVANCED ENERGY TECHNOLOGIES AND ENERGY CONSERVATION RESEARCH AND DEVELOP-MENT, 1976-1978, VOLUME 1

Washington GPO 1979 859 p refs Prepared by ORNL and DOE for the Comm. on Sci. and Technol., 96th Congr., 1st Sess., Jan. 1979

(GPO-41-481) Avail: SOD HC

Each of 7,339 research projects is described and listed in one of the following nine sections into which the inventory is divided: solar energy, geothermal energy, hydro energy, basic physical research, biomass production/conversion and alternative fuels, electric power engineering, energy storage, energy conversion, and energy management, policy, and conservation. Each section is organized in a two- and three-level hierarchical arrangement. A.R.H.

N80-12551\*# Ionics, Inc., Watertown, Mass. Research Div. ANTON PERMSELECTIVE MEMBRANE

Samuel S. Alexander, Russell B. Hodgdon, and Warren A. Waite Mar. 1979 52 p Sponsored by NASA

(Contract DEN3-1)

(NASA-CR-159599; DOE/NASA/0001-79/1) Avail: NTIS HC A04/MF A01 CSCL 10A

Experimental composite membranes were synthesized on a lab scale consisting of a thin layer of anion permselective resin supported by and bonded to a porous physically strong and conductive substrate film. These showed good selectivity and also substantially lower electrical resistivities than the homogenous candidate membranes optimized in the previous contract. A wide range of resin porosities were examined for three candidate membrane systems, CDIL, CP4L, and A3L to identify the formulation giving the best overall redox cell performance. Candidate anion membranes showed large increases in resistivity after a short time of immersion in concentrated FeCI/HCI solution. Largely on the basis of resistance stability the CDIL formulation was selected as prime candidate and about thirty-five membranes (one foot square) were produced for experimental static and dynamic evaluation.

N80-12552\* National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

A PHOTOVOLTAIC POWER SYSTEM IN THE REMOTE AFRICAN VILLAGE OF TANGAYE, UPPER VOLTA

William J. Bifano, Anthony F. Ratajczak, and James E. Martz 1979 17 p refs Presented at UNITAR Conf. on Long-Term Energy Resources, Montreal, 26 Nov. - 7 Dec. 1979 Sponsored in part by AID

(NASA-TM-79318; E-274) Avail: NTIS HC A02/MF A01 CSCL

A photovoltaic (PV) system powering a grain mill and a water pump was installed in the remote West African village of Tangaye, Upper Volta. Village characteristics as well as system design, hardware, installation and operation to date are described. The PV system cost is discussed. A baseline socio-economic study performed and a follow-up study is planned to determine the impact of the system on the villagers.

Research Lab. N80-12553# Air Force Academy, Colo. THE USAF ACADEMY FLYWHEEL-ELECTRIC CAR PRELIM-INARY DESIGN REPORT Progress Report, 1 Oct. 1977 -31 May 1979

David D. Ratcliff May 1979 47 p refs

(AF Proj. 2303) (AD-A071242:

10B

FJSRL-TR-79-0006)

HC A03/MF AQ1 CSCL 13/6

NTIS Avail.

Although problems caused by pollution and declining petroleum reserves have caused renewed interest in electric vehicles, currently-available lead-acid batteries impose performance limitations which are unacceptable to most drivers. These limitations, specifically low range and acceleration, are greatly improved by the addition of a flywheel and continuouslyvariable transmission to the power train of the of the electric vehicle. This paper describes a low-technology flywheel-electric car built by U.S. Air Force Academy cadets and faculty members in the Department of Physics under funding provided by Frank J. Seiler Research Laboratory. The car design discussed appears to offer the possibility for a four-passenger urban vehicle with a range of 70-100 miles and acceleration performance comparable to that of current sub-compact cars. This performance is achieved with a simple driving system which is comparable to that in current automatic transmission cars. The paper also details the benefits and problems resulting from the low-technology design chosen and provides trade-off analyses on some of the specific problems inherent in the use of a flywheel in the power train of a vehicle. Finally, the paper suggests future improvements which could lower the weight of the vehicle, make the transmission shifting more precise, and improve the performance of the car GRA

N80-1255
# American Univ., Washington, D. C. ON THE PROPERTIES OF A FUEL CELL ELECTROLYTE Final Report, 10 Jul. 1978 - 15 Jan. 1979

Robert T. Foley Feb. 1979 124 p refs

(Contract DAAK70-78-C-0128)

(AD-A072864) Avail: NTIS HC A06/MF A01 CSCL 10/2

The field of fuel cell electrolytes is surveyed with the objective of learning the deficiencies and good properties of the available systems. The survey included a study of inorganic acids as phosphoric, sulfuric, hydrochloric, perchloric, hydrofluoric and other strong acids; organic acids including sulfonic and carboxylic; alkaline systems; ion exchange membrane systems, solid electrolytes; and molten carbonate systems. Some general and specific conclusions are listed indicating the technical questions to be answered to develop a low temperature organic sulfonic acid system. GRA

N80-12556# Massachusetts Inst. of Tech., Cambridge. Dept. of Chemistry

PHOTOELECTROCHEMICAL CONVERSION OF OPTICAL ENERGY TO ELECTRICITY AND FUELS Interim Report Mark S. Wrighton 8 Aug. 1979 37 p refs Submitted for publication

(Contract N00014-78-C-0630; NR Proj. 051-696)

(AD-A072861; TR-2-ONR) Avail: NTIS HC A03/MF A01 CSCL 10/2

Though the first documented photovoltaic effect is associated with a semiconductor/liquid junction, it has not been until very recently that significant solar energy conversion efficiency could be realized with a photoelectrochemical device. A semiconductor/ liquid junction solar cell is one where one or both electrodes in an electrochemical cell is semiconductor such that irradiation of the semiconductor(s) results in the non-spontaneous flow of electric current in the external circuit. Photogeneration of storable chemical fuels in the form of electrolytic products is possible, in addition to the prospect of converting light only to electricity when the redox reaction occuring at one electrode is the reverse of that at the other. The aim of this report is to outline our recent research accomplishments in the field of photoelectrochemistry. Our work in this area began in late 1974 - more than a century after the first studies of photoeffects upon irradiation of an electrode in a cell, and a number of years after modern pioneering studies of semiconductor/liquid interfaces which led to the formulation of our present working hypotheses of such interfaces exposed to optical illumination.

#### NGO-12557# Institute of Gas Technology, Chicago, III. COMMERCIAL APPLICATION OF MOLTEN CARBONATE FUEL CELL SYSTEM

K. F. Blurton and J. R. Peterson 1979 16 p Presented at Energy Technol. Conf. and Exposition, Washington, D.C., 26 Feb. 1979 Prepared in cooperation with Gen. Elec., Schenectady, N. Y. (Contract EM-78-C-03-1735)

(CONF-790213-4) Avail: NTIS HC A02/MF A01

The potential applications of molten carbonate fuel cells are discussed with particular emphasis on the configuration of a dispersed, oil-fueled and a central, coal-fueled base-load power plant. The penetration of these power plants into the utility generation system is described. The status of this technology is reviewed, and the major technology areas currently under investigation are discussed.

N80-12558# Washington State Univ., Pullman. Environmental Research Center.

COMPARISON OF GEOTHERMAL ENERGY WITH COAL OIL AND NATURAL GAS FOR SELECTED USES G. W. Hinman and J. Robertson 1979 102 p refs

(Contract EY-76-S-06-2221)

(DOE/ET-27139-1; RLO/2221-T14/1) NTIS

HC A06/MF A01

Environmental effects and energy efficiencies for geothermal energy, western strip-mined coal, and eastern underground mined coal applied to space heating, process heat, and electric drive were compared. The measure of an environmental effect is the amount of residual material released to the environment, and the measure of energy efficiency is the second law efficiency of the process involved. The results indicate that geothermal energy efficiencies (second law) are higher than those for coal for all three end uses. The environmental effects for geothermal supply systems are smaller than those for coal in the cases of space heat and process heat and are comparable in the case of electric

drive. The optimum allocation of a finite geothermal resource and a finite coal resource between space heat and drive has been evaluated from the viewpoint of maximum end use service. The results indicate that, to the extent that location factors permit, geothermal energy should be used for space heat and coal for electric drive.

N80-12559# Sandia Labs., Albuquerque, N. Mex. BATTERIES FOR SPECIFIC SOLAR APPLICATIONS

R. P. Clark 17 Jul. 1979 24 p Presented at DOE/STOR Flow Battery Proj. Rev., Rockville, Md., 17 Jul. 1979 (Contract EY-76-C-04-0789)

(SAND-79-1428C) Avail: NTIS HC A02/MF A01

Reproductions of slides used in an oral presentation are published. Thermal batteries are mentioned, and the program strategy for developing batteries for photovoltaic systems is

N80-12561# California Univ., Livermore. USING SURFACE WATERS FOR SUPPLEMENTING INJECTION AT THE SALTON SEA GEOTHERMAL FIELD (SSGF), SOUTHERN CALIFORNIA

E. Raber, Lawrence B. Owen, and Jackson E. Harrar 10 Jul. 1979 5 p refs Presented at Geothermal Resources Council Ann. Meeting, Reno, Nev., 24 Sep. 1979

(Contract W-7405-eng-48)

CONF-790906-15) (UCRL-83011;

NTIS Avail:

HC A02/MF A01

It was found that direct injection of untreated makeup water is not feasible for cooling because of high suspended solids loading and potential incompatability problems. However, mixtures of ambient temperature makeup water and higher temperature (80 to 90 C) brine effluent, in a 1:4 mass ratio, are potentially injectable following processing by reaction clarification and granular media filtration.

N80-12562# Argonne National Lab., III. WORLD ENERGY DATA SYSTEM (WENDS). VOLUME 11: NUCLEAR FISSION PROGRAM SUMMARIES

Jun. 1979 345 p (Contract W-31-109-eng-38)

(ANL-PMS-79-2-Vol-11) Avail: NTIS HC A15/MF A01

Brief management and technical summaries of nuclear fission power programs are presented for nineteen countries. The programs include the following: fuel supply, resource recovery, enrichment, fuel fabrication, light water reactors, heavy water reactors, gas cooled reactors, breeder reactors, research and test reactors, spent fuel processing, waste management, and safety and environment.

N80-12563# Sandia Labs., Albuquerque, N. Mex. Systems Analysis Div.

EFFECT OF OPERATING TEMPERATURES ON THE COST OF ENERGY FROM SOLAR THERMAL ELECTRIC POWER **PLANTS** 

L. I. Lukens Jul. 1979 88 p refs (Contract EY-76-C-04-0789)

(SAND-79-0801) Avail: NTIS HC A05/MF A01

The operating temperature of a solar thermal electric power plant controls the efficiency of the collector field, the efficiency of the power generation system and the cost of the thermal energy storage system. The effect of these three items, as temperature is varied, on the annualized cost of energy produced by the system was evaluated for both stand-alone solar and solar diesel hybrid power plants. The type of solar power plant considered was one using a linear focus distributed collector field and a Rankine cycle power generation system. Systems using different collector performance models, Rankine cycle working fluids and thermal energy storage concepts were included in the evaluation.

N80-12564# Midwest Research Inst., Golden, Colo. THERMOELECTRIC OCEAN THERMAL ENERGY CONVER-SION

T. S. Jayadev, D. K. Benson, and M. S. Bohn Jun. 1979 33 p refs Presented at the Sixth Intern. OTEC Conf., Washington, D.C., 19-22 Jun, 1979

(Contract EG-77-C-01-4042)

CONF-790631-6) (SERI/TP-35-254;

NTIS Avail:

HC A03/MF A01 A novel thermoelectric ocean thermal energy conversion (OTEC) concept was proposed and compared with the ammonia closed-cycle designs. The thermoelectric OTEC was found to offer several potential advantages including; simpler and more easily mass produced components; higher reliability system performance through the use of a high level of redundancy and long-lived. solid state thermoelectric generators; greater safety for crew and environment by elimination of the pressurized safety for crew and environment by elimination of the pressurized working fluid; and the possibility of lower system costs.

N80-12565# Midwest Research Inst., Golden, Colo. SYSTEMS ANALYSIS AND TESTING (SAT) PROGRAM Progress Report, 1 Oct. 1978 - 31 Mar. 1979

C. J. Bishop Jul. 1979 19 p refs (Contract EG-77-C-01-4042)

(SERI/PR-35-313) Avail: NTIS HC A02/MF A01

Activities of the systems analysis and testing (SAT) program are described. These include: (1) a reevaluation of thermosiphon hot water systems; (2) a review of existing wind machine performance models; a study of the effects of wind transients, and control system and load management on energy capture; (3) a study of new concepts for solar ponds involving stratified ponds; (4) establishment of the computational methods center; (5) dissemination of F-chart; (6) a review of photovoltaic systems analysis methods; (7) development of a draft SAT program plan, SAT management plan, and an integrated system test and validation plan, and (8) transfer of technical management of contracts in the SAT program.

N80-12566# Lincoln Lab., Mass. Inst. of Tech., Lexington. OPTIMIZATION OF PHOTOVOLTAIC/THERMAL COLLEC-TOR HEAT PUMP SYSTEMS

M. C. Russell and E. C. Kern, Jr. 1979 5 p refs Presented at the 1979 Intern. Solar Energy Soc., Atlanta, 28 May - 1 Jun. 1979

(Contract EG-77-S-02-4577)

CONF-790541-20) (COO-4577-7; HC A02/MF A01

Avail: NTIS

Photovoltaic/thermal (PV/T) collector-heat pump systems were simulated for residences in New York and Fort Worth climates. Analysis of the technical and economic results are discussed. The parallel heat pump configuration with 40 square meters of PV/T collectors was found to be the least-cost system option for the New York residence.

N80-12567# Franklin Inst. Research Labs., Philadelphia, Pa. THE GREAT ADVENTURE: A REPORT ON THE 10 REGIONAL PUBLIC HEARINGS ON SOLAR ENERGY FOR THE DOMESTIC POLICY REVIEW

Oct. 1978 52 p refs Prepared by the Inst. for Local Self

(Contract EU-78-C-01-6354)

(HCP/U6354-01) Avail: NTIS HC A04/MF A01

A report on the public hearings is presented along with policy recommendations. The recommendations are as follows: (1) the Federal government should move aggressively from research to commercialization, marketing, and public education; (2)decentralization both in program process and in context should be pursued vigorously; (3) the government should emphasize small scale systems, small businesses, individual inventors, community organizations, and small research groups in its funding programs; (4) solar energy systems that are decentralist are preferred over the more central-oriented; (5) passive solar design was the major technology recommended throughout; (6) DOE must streamline its grants process and reduce paperwork that proposals require; (7) the major item required for a successful solar industry is rapid passage of the solar income tax credit, either within, or separate from, the National Energy Act; (8) low interest loans and investiment capital are required by small businesses; (9) public information on solar energy should be more available; (10) the budget for solar should be increased substantially; and (11) solar programs should be related to job-creation programs.

DOE

N80-12568# Oak Ridge National Lab., Tenn. Engineering Technology Div.

### LOW-TEMPERATURE THERMAL ENERGY STORAGE PROGRAM ANNUAL OPERATING PLAN

H. W. Hoffman and D. M. Eissenberg Jan. 1979 130 p (Contract W-7405-eng-26)

(ORNL/TM-6605) Avail: NTIS HC A07/MF A01

The LTTES program operating plans for FY 1978 are described in terms of general program objectives and the technical activities being implemented to achieve these objectives. The program structure provides emphasis on seasonal thermal storage, daily/short-term thermal storage, and waste heat recovery and reuse. A work breakdown structure organizes the efforts being carried out in-house or through subcontract within each thrust area. Fiscal data are summarized with respect to thrust area, individual efforts, and funding source.

N80-12569# California Univ., Livermore. Lawrence Livermore Lab.

### HYBRID STAGING OF GEOTHERMAL ENERGY CONVERSION PROCESSES

Robert F. Steidel Sep. 1978 27 p refs

(Contract W-7405-eng-48)

(UCID-17949) Avail: NTIS HC A03/MF A01

A hybrid system consists of two or more energy conversion processes. The use is examined of three energy conversion machines in hybrid systems: the conventional single-phase turbine, and the two-phase expanders known as the Lysholm engine and the radial outflow reaction turbine. Two hybrid systems are presented. The first is a two-stage, single-flash system with the Lysholm engine as the first stage, and a separator and conventional turbine as the second stage. The second system adds a radial outflow reaction turbine to recover a part of the energy rejected in the second stage. A theoretical specific power of 41.3 kW.s/lb is predicted for the two-stage, single-flash hybrid system. The addition of the radial outflow rotary turbine increases performance to 44.8 kW.s/lb. Both are superior to the double-flash system, with a specific power of 37.8 kW.s/lb. In addition, the hybrid system offers operating flexibility.

N80-12570# California Univ., Livermore, Lawrence Livermore Lab.

#### NEW CONCEPTS FOR CONVERTING THE ENERGY IN LOW-TO MEDIUM-TEMPERATURE LIQUIDS, WITH EM-PHASIS ON GEOTHERMAL APPLICATIONS

Arthur L. Austin and Palmer A. House 20 Sep. 1978 18 p refs

(Contract W-7405-eng-48)

(UCRL-52583) Avail: NTIS HC A02/MF A01

The Geothermal Development Program at Lawrence Livermore Laboratory has produced several novel expanders for liquids of low to medium temperatures (approximately 180 C). A unique radial outflow reaction turbine (RORT) was developed and laboratory-tested; results indicate that 50% engine efficiency is achievable. This work has led to a new concept called the velocity pump reaction turbine (VPRT), which could significantly increase the gross engine efficiency of the RORT, VPRT and its modifications are a unique family of turbines created specifically for expanding liquids to produce shaft work at potential engine efficiencies of up to 70%. Such devices, if used between the two separation stages of a double-flash system, could increase the overall power output by 15 to 20%, reducing power costs by at least 10% for about a 3% increase in capital costs. Geothermal applications are discussed with emphasis on geopressured resources. Also, these machines are suitable for utilizing solar heated fluids and waste heat sources from industrial processes. DOE

N80-12571# Sandia Labs., Albuquerque, N. Mex. EVALUATION OF SOLAR RANKINE-CYCLE ENGINE SYSTEMS

Gilad Ramback (Ormat Turbines Ltd., Yavne, Israel) Jan. 1979 39 p refs

(Contract EY-76-C-04-0789)

(SAND-78-0986) Avail: NTIS HC A03/MF A01

Electrical parasitic losses are evaluated for two solar Rankine-cycle engine systems: (1) a total-energy solar system for the Midtemperature Solar Systems Test Facility (MSSTF), and (2) the Willard solar irrigation pump. Estimates are given of the minimal electrical parasitic losses that a commercialized total-energy solar system of the size of the MSSTF could have as well as minimal losses for the Willard solar irrigation pump.

DO

N80-12572# Sandia Labs., Albuquerque, N. Mex. Chemical Technology Div.

#### CLOSED-CYCLE HYDRIDE ENGINES

Thomas E. Hinkebein, Clyde J. Northrup, and Albert A. Heckes Dec. 1978  $\,$  25 p  $\,$  refs

(Contract EY-76-C-04-0789)

(SAND-78-2228) Avail: NTIS HC A02/MF A01

Closed cycle hydride engines of 1/2 horsepower or less, which are capable of using a low quality heat source available from flat plate solar collectors or from process waste streams, are described. The engines are simple in concept and operation, potentially inexpensive, reliable, and capable of remote unattended operation. They perform work as hydrogen evolved from a heated metal hydride expands against a flexible member. The cycle is completed by the reabsorption of hydrogen in the metal upon cooling. Theoretical cycles are described and efficiencies are presented. A comparison is made to both Carnot and Rankine cycles.

## N80-12575# Oak Ridge National Lab., Tenn. Energy Div. WASTE HEAT. REJECTION FROM GEOTHERMAL POWER STATIONS

R. C. Robertson Dec. 1978 159 p refs (Contract W-7405-eng-26) (ORNL/TM-6533) Avail: NTIS HC A08/MF A01

Waste heat rejection from geothermal power stations is concerned only with the heat rejected from the power cycle. The heat contained in reinjected or otherwise discharged geothermal fluids is not included with the waste heat considered here. The heat contained in the underflow from the flashtanks in such systems is not considered as part of the heat rejected from the power cycle. By following this definition of the waste heat to be rejected, various methods of waste heat dissipation are discussed without regard for the particular arrangement to obtain heat from the geothermal source. Recent conceptual design studies made for 50 MW(e) geothermal power stations at Heber and Niland, California, are of particular interest. The former uses a flashed-steam system and the latter a binary cycle that uses isopentane. In last-quarter 1976 dollars, the total estimated capital costs were about \$750/kW and production costs about 50 mills/kWhr. If wet/dry towers were used to conserve 50% of the water evaporation at Heber, production costs would be about 65 mills/kWhr. DOE

## N80-12576# Ames Lab., Iowa. Solar Div. OPERATIONAL EXPERIENCE WITH DRAIN-DOWN SOLAR SYSTEMS

P. H. Sidles, R. G. Struss, and E. C. Brohl 1978 11 p ref Presented at Solar Heating and Cooling Systems Operational Results Conf., Colorado Springs, Colo., 29 Nov. 1978 (Contract W-7405-eng-82)

(IS-M-166; CONF-781102-3) Avail: NTIS HC A02/MF A01 Drain-down solar collector systems offer substantial economic advantage over antifreeze/heat-exchange systems. Drain-down systems are simpler, have lower piping and plumbing costs, and operate at higher collector and system efficiencies. Properly designed and installed drain-down systems intrinsically should require less maintenance. These advantages have not yet been demonstrated in actual operating experience. A substantial number of the Solar Heating and Cooling Demonstration projects under Ames Laboratory cognizance are of drain-down design. Most projects are located in freezing climates; some suffered damage from freezing last winter. Operating experiences for these projects are presented, together with some design criteria for drain-down systems that these operating experiences reveal.

N80-12577# Los Alamos Scientific Lab., N. Mex.

PERFORMANCE OF LOS ALAMOS SOLAR MOBILE/ MODULAR HOME UNIT NO. 1

J. C. Hedstrom, S. W. Moore, and J. D. Balcomb 1978 7 p Presented at Solar Heating and Cooling Systems Operational Results Conf., Colorado Springs, Colo., 29 Nov. 1978 (Contract W-7405-eng-36)

(LA-UR-78-2587; CONF-781102-1) NTIS Avail: HC A02/MF A01

Mobile/Modular Home Unit No. 1 at the Los Alamos Scientific Laboratory is an active air system which incorporates 340 sq ft of flat black single-glazed flat-plate air collectors mounted at a 60 tilt on the south wall. The thermal storage is in 1536 pint jars of water spaced apart by 5/8 in. to allow air flow around the jars. Data have been obtained on the unit from October 1976, up to the present. Data acquisition is by a Hewlett-Packard 3050 system controlled with a HP9825 desk top calculator. Complete energy summaries for the heating seasons have been obtained. The solar energy system has provided about 70% of the heating requirements of the house each season. Although the solar energy system provides a major fraction of the space and domestic hot water requirements, the yearly total energy supplied is low. This is primarily because the house load was lower than expected due to passive gains and internal heat

(5.3 Btu/sq ft F) and several possible uncontrolled air leaks.

N80-12578# Midwest Research Inst., Golden, Colo. DIRECT LABOR REQUIREMENTS FOR SELECT SOLAR ENERGY TECHNOLOGIES: A REVIEW AND SYNTHESIS B. Mason and K. Armington Aug. 1978 32 p refs (Contract EG-77-C-01-4042)

generation. Low performance is also due to a low storage mass

(SERI/RR-53-045) Avail: NTIS HC A03/MF A01

Various estimates of the labor requirements for the design, manufacture, installation, and maintenance of space heating and domestic hot water systems are presented. Total projected job requirements by year, calculated by multiplying person-hours per system times market penetration estimated, are provided. Limitations of previous studies and conclusions about needed research are discussed.

N80-12579# Sandia Labs., Albuquerque, N. Mex. Div. 4715. EFFORTS ON THE ECONOMIC ANALYSIS OF DARRIEUS **VERTICAL AXIS WIND TURBINES** 

W. N. Sullivan 1978 8 p ref Presented at Am. Wind Energy Assoc. Conf., Hyannis, Mass., 25 Sep. 1978

(Contract EY-76-C-04-0789) (SAND-78-1851C; CONF-780972-1) NTIS

HC A02/MF A01

There is an ongoing program designed to establish reasonable estimates for the cost of utility grid energy produced by Darrieus VAWT systems. The economic analysis is based on the detailed examination of actual point designs, which cover a range of system sizes. The approach is unique in that in addition to determining the direct costs of system components, an effort is made to include the indirect costs and profits of the manufacturing, marketing, distributions, and sales tasks of the enterprise producing the systems. The point design specifications and drawings were developed and provide the baseline for this study. The specifications represent optimum designs, as determined by an economic optimization model. This model, with mathematical formulas for the costs of major system elements, was used to select from many possibilities an optimum set of design specifications.

N80-12580# Oak Ridge National Lab., Tenn. Energy Div. FUEL CHOICE AND AGGREGATE ENERGY DEMAND IN THE COMMERCIAL SECTOR

Steve Cohn Dec. 1978 51 p refs (Contract W-7405-eng-26)

(ORNL/CON-27) Avail: NTIS HC A04/MF A01

A fuel choice and aggregate demand model of energy use in the commercial sector of the United States is presented. The model structure is dynamic with short run fuel price responses estimated to be close to those of the residential sector. Of the three fuels analyzed, electricity consumption exhibits a greater

response to its own price than either natural gas or fuel oil. In addition, electricity price increases have the largest effect on end use energy conservation in the commercial sector. An improved commercial energy use data base is developed which removes the residential portion of electricity and natural gas use that traditional energy consumption data sources assign to the commercial sector. In addition, household and commercial petroleum use is differentiated on a state by state basis. DOE

N80-12582# Department of Energy, Washington, D. C. Economic Regulatory Administration.

STANDBY CONSERVATION PLAN NO. 2: EMERGENCY BUILDING TEMPERATURE RESTRICTIONS. AUTHORI-TIES: NEED, RATIONALE, OPERATION Feb. 1979 29 p

(DOE/ERA-0048) Avail: NTIS HC A03/MF A01

The text of the Emergency Building Temperature Restrictions is given. The text includes definitions, heating and cooling, hot water, reports and recordkeeping, operators, customer lists, relation to state law, administrative provisions, public information, and penalties. The statement of the need for rationale and operation of the plan is also given. The plan applies in each state or political subdivision thereof and preempt inconsistent state or local law. DOE

N80-12583# Department of Energy, Washington, D. C. Office of Fusion Energy.

UNITED STATES MAGNETIC FUSION ENERGY PRO-GRAM

S. O. Dean Aug. 1978 176 p

(DOE/ET-0072) Avail: NTIS HC A09/MF A01

The following topics are discussed: (1) policy; (2) magnetic fusion energy program; (3) physics proof-of-principle programs; (4) major scaling experiments; (5) energy producing experimental reactors: design studies and long lead time technology development; (6) commercialization: reactor designs and systems studies; and (7) enhancement studies.

N80-12585# IBM Federal Systems Div., Huntsville, Ala. OCTOBER 1978 ENVIRONMENTAL DATA FOR SITES IN THE NATIONAL SOLAR DATA NETWORK

Oct. 1978 176 p refs (Contract EG-77-C-01-4049)

(SOLAR/0010-78-10) Avail: NTIS HC A09/MF A01

The thermal performance of selected solar energy systems was determined. The energy contribution of each solar energy system was also determined.

N80-12586# California Univ., Berkeley. Lawrence Berkeley

#### EXPERIMENTAL TEST FACILITY FOR EVALUATION OF SOLAR CONTROL STRATEGIES

M. Majteles, H. Lee, M. Wahlig, and M. Warren 15 Aug. 1978 11 p Presented at Workshop on the Control of Solar Energy, Hyannis, Mass., 23 May 1978

(Contract W-7405-eng-48)

(LBL-8308: CONF-7805126-5) HC A02/MF A01

NTIS

An experimental solar heating and cooling system was constructed. It was designed to serve as a test system to check out the operation of a solar controller that looked promising in terms of its commercialization potential. Improvements were made in the experimental heating and cooling system to enable quantitative determination of the auxiliary energy savings made possible by using this type of controller. These improvements consisted of installation and calibration of accurate instrumentation, data acquisition capabilities, and development of simulated input and output devices that would allow repeated experiments using the same running conditions. In addition, the possibilities of further development of the heating and cooling system into an experimental test facility for a wide range of solar control strategies were investigated.

N80-12588# California Univ., Berkeley. Lawrence Berkeley

## RESIDENTIAL ON SITE SOLAR HEATING SYSTEMS. A PROJECT EVALUATION USING THE CAPITAL ASSET PRICING MODEL M.S. Thesis

S. R. Schutz Dec. 1978 60 p refs (Contract W-7405-eng-48)

(LBL-8298) Avail: NTIS HC A04/MF A01

The feasibility of 'on site solar heating' (OSSH) as a private utility investment was analyzed. The return on OSSH was calculated on the basis of the cost to the consumer of the equivalent amount of electrical energy that is displaced by the OSSH system. The hurdle rate for investment in OSSH was calculated using the Sharpe-Lintner Capital Asset Pricing Model. The results of this study indicate that OSSH is a low risk investment having an appropriate hurdle rate of 7.9%. At this rate, OSSH investment appears marginally acceptable in northern California and unambiguously acceptable in southern California. The results also suggest that utility investment in OSSH should lead to a higher degree of financial leverage for utility companies without a concurrent deterioration in the risk class of utility equity.

N80-12589# California Univ., Berkeley. Lawrence Berkeley

### ANALYSIS OF THE CALIFORNIA SOLAR RESOURCE, VOLUME 2 Final Report

P. Berdahl, D. F. Grether, M. Martin, and M. Wanig Nov. 1978 90 p refs

(Contract W-7405-eng-48)

(LBL-7860-Vol-2) Avail: NTIS HC A05/MF A01

In order to assess the requirements for solar design data, several different paths were followed. The existing literature was consulted, analytical work was carried out within the project to determine the sensitivity of system design to errors in the solar data, and extensive contacts were made with potential users of solar data. Existing solar design techniques were evaluated in order to determine the types and quality of data needed. The determination of future solar data requirements for California was made on the basis of a regionalization of the state into solar zones, a familiarity with existing and proposed high-quality solar data networks, and knowledge of past data collection efforts. Recommendations for action by the state are presented. These recommendations are made to assure that adequate measures are taken now to meet solar data needs of the future.

### N80-12590# Sandia Labs., Albuquerque, N. Mex. SOLAR MECHANICAL ENERGY STORAGE PROJECT

B. C. Caskey and H. M. Dodd 1978 6 p refs Presented at the First Inform. Exchange Conf., Luray, Va., 24 Oct. 1978 (Contract EY-76-C-04-0789)

(SAND-78-1982C; CONF-781046-10) Avail: NTIS HC A02/MF A01

Systems analyses identified flywheel energy storage systems as the most promising technology for small to intermediate load applications. Detailed design studies to investigate this storage mode are described.

DOE

## N80-12591# PRC Energy Analysis Co., McLean, Va. SOLAR ENERGY COMMERCIALIZATION FOR AFRICAN COUNTRIES

Dec. 1978 101 p refs (Contract EG-77-C-01-2522)

(HCP/CS-2522) Avail: NTIS HC A06/MF A01

Kenya, Cameroon, Nigeria, Niger, Ivory Coast, and Senegal were surveyed as part of the information acquisition task for the DOE International Solar Commercialization Working Group. All these countries are rich in solar energy and are friendly to the U.S. They represent a wide range of geographic features, climatic conditions, and energy resources. The main results are outlined.

## N80-12592# Lincoln Lab., Mass. Inst. of Tech., Lexington. MEAD, NEBRASKA, 25-kW PHOTOVOLTAIC POWER SYSTEM

W. R. Romaine 5 Jan. 1979 43 p refs (Contract EY-76-C-02-4094) (COO-4094-10) Avail: NTIS HC A03/MF A01 In 1977 MIT/Lincoln Laboratory designed, constructed, and put into operation a 25 kW peak solar photovoltaic power system in Mead, Nebraska. This system was to be used to provide power to an agricultural test facility operated by the University of Nebraska. The initial application of the PV system was to provide power to irrigate an 80 acre cornfield. The photovoltaic power system is described as it existed at the time of its inauguration, and as it will exist following the completion of presently planned modifications, which include more fully automated control and addition of an uninterruptible power supply.

## N80-12693# Drexel Univ., Philadelphia, Pa. DOUBLE-EXPOSURE COLLECTOR SYSTEM Progress Report, 1 Jul. - 30 Sep. 1978

D. C. Larson and C. W. Savery 31 Oct. 1978 11 p (Grant EG-77-G-04-4089)

(TID-28964) Avail: NTIS HC A02/MF A01

A retrofit solar water-heating system was installed in a three-story apartment building. The system employs two conventional collector banks (10 PPG collectors) mounted at the latitude angle for Philadelphia of 40 deg from the horizontal and two double-exposure collectors (DEC's) mounted vertically in mirrored enclosures. Although the DEC units are being used for year-round domestic water heating for the building, they are designed to provide maximum output in the winter and are therefore well-suited to solar space heating applications. Instrumentation for testing the collectors was available in the apartment building. New temperature sensors and a heat exchanger were installed and regular data collection was started. Every effort is being made to assure that reliable data are being obtained. A theoretical study of alternative mirror configurations was also completed. These calculations indicate that an optimal adjustable-mirror configuration exists which is optimal at latitudes 35, 40 and 45 deg. One mirror configuration, therefore, can be employed at diverse locations and is adaptable to a variety of solar energy applications. DOF

## N80-12594# Institute for Energy Analysis, Oak Ridge, Tenn. CONSTRAINTS ON ENERGY CONSERVATION

Willem vanGool Sep. 1978 21 p refs (Contract EY-76-C-05-0033)

(ORAU/IEA-78-17(M)) Avail: NTIS HC A02/MF A01

Energy conservation achieved through technology is discussed and distinguished against energy conservation achieved through changes of lifestyle. In the technological approach, the objectives of energy consuming activities are not questioned; thus, it is accepted that society needs a certain amount of aluminum, polymers, transport, etc., per year. What is analyzed in this approach is how these materials and services can be provided more efficiently. Alternatively, in the change of lifestyle approach to conservation the demand as such is analyzed: do we need aluminum, can we decrease the temperature in homes, do we need to travel? The distinction between the two approaches is demonstrated by considering the rate of energy-consuming activities.

## N80-12595# Institute for Energy Analysis, Oak Ridge, Tenn. FUNDAMENTAL ASPECTS OF ENERGY CONSERVATION POLICY

W. VanGool Nov. 1978 39 p refs (Contract EY-76-C-05-0033)

(ORAU/IEA-78-20(M)) Avail: NTIS HC A03/MF A01

The 'technological fix' approach to energy conservation is discussed. Higher capital investment can lead to a decrease in direct use of energy. Both the cost and the energy involved in these investments were analyzed along a conservation path, and a limited number of constants were used to direct the changes along this path. It was found that an increase in the price of energy will lead to higher capital investments in accordance with the economic lifecycles in the different sectors. For applications with a short lifetime, such as in the transport sector, energy conservation will mainly take place through the construction of new equipment. In sectors with long-lifetime investments (e.g., buildings), retrofitting will be important.

N80-12596# California Univ., Livermore. Lawrence Livermore Lab

## MECHANICAL ENERGY STORAGE TECHNOLOGY DEVELOPMENT FOR ELECTRIC AND HYBRID VEHICLE APPLICATIONS

T. M. Barlow 17 Oct. 1978 10 p refs Presented at 1st Inform. Exchange Conf., Luray, Va., 24 Oct. 1978 (Contract W-7405-eng-48)

(UCRL-81786; CONF-781046-11) Avail: NTIS

HC A02/MF A01

Flywheel concepts and one elastomeric energy storage concept all applicable to regenerative braking are developed. The performance and fuel economy of electric vehicles are improved. An experimental study of the effect of load leveling on battery life and analytical evaluations of mechanical energy storage technology are included. These activities are integrated in an overall plan and management structure designed to enhance the commercialization of electric vehicles.

N80-12597# Oklahoma Univ., Norman. School of Aerospace, Mechanical and Nuclear Engineering.

### RESEARCH ON THE DYNAMICS OF BAND-SUPPORTED FLYWHEEL SYSTEMS Final Report

C. W. Bert, C. A. Kocay, T. L. Chen, and J. P. Busby Nov. 1978 61 p refs

(Contract EY-76-C-04-0789)

(SAND-78-7074) Avail: NTIS HC A04/MF A01

Analytical research is reported relating to various aspects of the dynamics of band-supported, composite-material-rim flywheel energy-storage systems for application in hybrid automotive vehicles. A parametric study is carried out for free whirling of a flywheel system with a flywheel shaft supported by ball bearings, typical of a class of configurations contemplated in vehicular application as distinguished from R and D spin tests. It is shown that for a wide range of combinations of hub location and bearing and shaft stiffnesses, it is possible to avoid having any potentially dangerous forward-precession critical speeds throughout the desired operating range of 8,000 to 32,000 rpm. Nonlinear analyses are presented to describe the behavior of the bands in both the translational and tilting modes. The primarily softening behavior is geometrically induced and can lead to buckling at relatively small amplitudes. The band behaviors are approximated by polynomial expansions and applied to analyses of the steady-state forced whirling response. An analysis is presented for the behavior of a ring-type containment system after failure of the bands. This analysis combines Hertzian impact theory with an analysis of ring response to a concentrated load of half-sine waveform. It is shown that a 1-inch thick aramid-epoxy ring should provide satisfactory containment. Small model studies were initiated to study some of the nonlinear and containment phenomena. DOE

## N80-12598# Oak Ridge National Lab., Tenn. CRYSTALLOGRAPHIC CONTRIBUTIONS TO THE ENERGY PROBLEM

M. K. Wilkinson 1978 51 p Presented at 11th Congr. of Crystallography, Warsaw, 2 Aug. 1978 (Contract W-7405-eng-26)

(CONF-780867-1) Avail: NTIS HC A04/MF A01

Areas in which studies of crystallography can contribute to development of new materials for energy technology are reviewed.

## N80-12599# Oak Ridge National Lab., Tenn. REGIONAL ECONOMIC/DEMOGRAPHIC PROJECTIONS FOR ENERGY POLICY ANALYSIS

D. J. Bjornstad Jan. 1979 37 p refs (Contract W-7405-eng-26)

(ORNL/TM-6668) Avail: NTIS HC A03/MF A01

The importance of adequate population and employment projections for regional policy analysis related to energy, and whether energy policy may significantly modify existing trends is studied. It is concluded that energy is less likely to create new subnational socio-economic tendencies than to enhance or retard existing trends, but that to analyze these circumstances a growth-policy format is desirable. It is emphasized that a lack

of past experience with many new energy technologies will make impact analysis difficult. For this reason, attempts should be made to anticipate possible impacts well in advance of technology deployment.

# N80-12600# Gibbs and Cox, Inc., Washington, D. C. OCEAN THERMAL ENERGY CONVERSION (OTEC) PLATFORM CONFIGURATION AND INTEGRATION, EXECUTIVE SUMMARY Final Report

R. J. Scott Jul. 1978 205 p refs

(Contract EG-77-C-01-4064)

(DOE/ET-4064-1) Avail: NTIS HC A09/MF A01

Studies leading to the development of conceptual designs for two 400 MW Offshore Thermal Energy Conversion (OTEC) commercial plants are summarized. A detailed overview of the study is presented. The successful deployment of a commercial OTEC plant in the near term is dependent upon the optimization of the platform configuration and power plant output level. The optimization procedure is based on both technical and economic factors and is used to evaluate a relatively large number of alternatives, i.e., six hullforms, five plant outputs ranging from 50 to 500 megawatts (MW), and three deployment sites. The hullforms under consideration include the ship (barge), cylinder (disc), spar, submersible, semi-submersible, and sphere; while the deployment sites are Hawaii, New Orleans, and Key West. The second part of the summary describes the development of the two platforms selected by DOE to be carried through the conceptual design level: a 400 MW ship and semi-submersible. DOF

N80-12601# Department of Energy, Oak Ridge, Tenn. Technical Information Center.

### ENERGY INFORMATION DATA BASE. SERIAL TITLES, FEBRUARY 1976 - MARCH 1979

Mar. 1979 87 p

(DOE/TIC-4579-R10-Suppl-4) Avail: NTIS HC A05/MF A01
This supplement contains changes and additions to
TID-4579-R10 (Serial titles used by the DOE Technical Information
Center) and is intended for use with that publication.

N80-12602# Oak Ridge National Lab., Tenn. Computer Sciences Div.

### ECONOMICS OF FUSION DRIVEN SYMBIOTIC ENERGY SYSTEMS

J. P. Renier, T. J. Hoffman, and J. G. Martin 1979 7 p refs Presented at ANS Ann. Meeting, Atlanta, Ga., 3 Jun. 1979 Prepared jointly with Lowell Univ., Mass.

(Contract W-7405-eng-26)

(CONF-790602-50) Avail: NTIS HC A02/MF A01

The economic analysis of symbiotic energy systems in which U233 (to fuel advanced converters burning U233 fuel) is generated in blankets surrounding fusioning D-T plasma's depends on factors such as the plasma performance parameters, ore costs, and the relative costs of Fusion Breaders (CTR) to Advanced Fusion Converters. The analysis also depends on detailed information such as initial, final makeup fuel requirements, fuel isotopics, reprocessing and fabrication costs, reprocessing losses (1%) and delays (2 years), the cost of money, and the effect of the underutilization of the factory thermal installation at the beginning of cycle. The results are presented of calculations of overall fuel cycle and power costs, ore requirements, proliferation resistance and possibilities for grid expansion, based on detailed mass and energy flow diagrams and standard US INFCE cost data and introduction constraints, for realistic symbiotic scenarios involving CTR's (used as drivers) and denatured CANDU's (used as U233 burners). The results are compared with those obtained for other strategies involving heterogeneous LMFBR's which burn Pu to produce U233 for U233-burners such as the advanced CANDU converters (MEU233-CANDU).

N80-12603# Little (Arthur D.), Inc., Cambridge, Mass.
SOLAR HEATING AND COOLING OF BUILDINGS (SHACOB)
COMMERCIALIZATION REPORT. PART B: ANALYSIS OF
MARKET DEVELOPMENT, VOLUME 2 Final Report
Sep. 1977 88 p

(DOE/TIC-10071) Avail: NTIS HC A05/MF A01

The SHACOB Commercialization Model is designed to gauge the impacts of selected Federal incentive programs to encourage the development of solar energy equipment for hot water heating, space heating and space cooling in residential and commercial buildings. The model was implemented as a FORTRAN program and is presently running on the FEA computer system. It is used via the super WYLBUR data management system at FEA. Some modeling results are presented.

N80-12604# Stockholm Univ. (Sweden). Forskningsgruppen foer Energisystestudier.

EFFECTS OF ENERGY POLICY ON INDUSTRY

Alf Carling and Joyce Dargay Jun. 1978 211 p refs In SWEDISH: ENGLISH summary

(USFFE-1978-8) Avail: NTIS (US Sales Only) HC A10/MF A01: DOE Depository Libraries

The results from a number of studies of energy consumption in Swedish manufacturing industries and of the sensitivity of different industrial sectors to energy taxation and other kinds of energy policy measures are presented. These studies were concentrated on three energy-intensive sectors, namely the pulp and paper industry; mining and metal production (especially iron mines and the steel industry); and the brick, cement, and lime industry.

## N80-12605# Los Alamos Scientific Lab., N. Mex. PROCESS DESIGN OF THE LASL BISMUTH SULFATE THERMOCHEMICAL HYDROGEN CYCLE

K. E. Cox, J. H. Pendergrass, and W. M. Jones 1979 8 p refs Presented at Intersoc. Energy Conversion Conf., Boston. 5 Aug. 1979

(Contract W-7405-eng-36)

(LA-UR-79-1256; CONF-790803-25) Avail: NTIS

HC A02/MF A01

A process engineering flowsheet for a design of the LASL bismuth sulfate thermochemical cycle is presented. The design is based on laboratory data that indicate a lowered endothermic heat load for a partial decomposition of the solid bismuth sulfate. The results of the flowsheeting analysis yield a thermal efficiency of 50% for the cycle when coupled to a conceptual fusion energy heat source at 1500 K. A parametric analysis shows a slight drop in efficiency as the temperature of the heat source is decreased. The LASL bismuth sulfate thermochemical cycle appears to have potential as a means of producing hydrogen from high temperature heat sources such as fusion, fission, and solar energy; it also appears to be competitive with alternative thermochemical cycles as well as with water electrolysis for hydrogen production.

## N80-12606# League of Women Voters, Washington, D. C. ENERGY CONSERVATION TECHNOLOGY EDUCATION PROGRAM Final Report

Jan. 1979 106 p refs

(Contract EC-77-C-01-2165)

(HCP/M2165) Avail: NTIS HC A06/MF A01

A project on teaching the public how to use energy more efficiently in the home is described. The methodology of the project is discussed and the findings and achievements are highlighted.

A.W.H.

## N80-12607# Ehrenkrantz Group, New York, N. Y. ARCHITECTURAL CONCERNS IN SOLAR SYSTEM DESIGN AND INSTALLATION

S. Weinstein Mar. 1979 34 p

(Contract EG-77-C-01-2522)

(SOLAR/0801-79-01) Avail: NTIS HC A03/MF A01

The physical (rather than the mechanical or electrical) aspects involved in the design and installation of solar systems are discussed. The typical physical factors and problems encountered in design are considered. The cost effectiveness of various approaches are analyzed. DOE's specific experience relative to what solar designers nationwide are designing in the installation of solar collectors, array structures, piping and storage equipment, with particular emphasis on cost-effective alternatives is discussed.

# N80-12608# Bechtel National, Inc., San Francisco, Calif. TECHNICAL AND ECONOMIC ASSESSMENT OF SOLAR POWERED WATER PUMPING FOR REMOTE AREAS Final Report

Jul. 1979 110 p refs (Contract EY-76-C-04-0789)

(SAND-79-8187) Avail: NTIS HC A06/MF A01

The technology of solar powered water pumping, is reviewed. An overview of the technology and its economics is provided, based on a review and assessment of the open literature. It is shown that pumped water is used most extensively for irrigation, and that new irrigation methods, such as the center pivot system, have significantly increased the water pumping power demand in recent years. The coincidence of the peak irrigation season and peak seasonal insulation makes solar energy a good candidate to supplement or displace depletable energy sources currently used for water pumping. Solar powered water pumping demonstration systems utilizing solar thermal, photovoltaic and wind powered energy conversion are evaluated. The prime movers of these systems either drive the pumps directly or indirectly through electric power generation. A comparative evaluation of these and other proposed solar concepts was conducted and resulted in the selection of a reference system comprised of a number of individual parabolic dish collectors with integral Brayton DOF cycle engines.

# N80-12609# Giner, Inc., Waltham, Mass. STUDY OF CORROSION AND ITS CONTROL IN ALUMINUM SOLAR COLLECTORS Annual Report, 1 Jun. 1977 - 31 Jul. 1978

D. Wong, F. H. Cocks, J. Giner, and P. S. Majahad Aug. 1978 68 p  $\,$  refs

(Contract EY-76-C-02-2934)

(COO-2934-7) Avail: NTIS HC A04/MF A01

The development of corrosion control methods for aluminum solar collectors using ethylene glycol heat transfer fluids was studied. Corrosion inhibitors and impurity scavengers were tested and evaluated at temperatures up to 160 C under various laboratory conditions. A new corrosion rate measurement technique based on the use of thin foil samples was developed and adopted in this program to provide accelerated results. In addition to the development of corrosion control methods, the acquisition of baseline corrosion data was also extended to the aluminum/propylene glycol combination. Propylene glycol was chosen primarily because of its low toxicity. Aluminum corrosion characteristics were determined in 50, 85 and 100% propylene glycol solutions at temperatures between 25 to 160 C. Corrosion behavior of aluminum in more concentrated ethylene glycol solutions (up to 100%) at higher temperatures (up to 160 C) was also obtained in order to broaden the baseline.

N80-12610# Brookhaven National Lab., Upton, N. Y. Accelerator Dept.

### SOLAR-POWERED STEAM GENERATOR HELIOSTAT Final Report

J. G. Cottingham Dec. 1978 143 p refs (Contract EY-76-C-02-0016) (BNL-50974) Avail: NTIS HC A07/MF A01

A small-size central-receiver-type solar energy collecting system delivering commerical grade steam is analyzed and a wind avoidance type heliostat designed, built, and successfully tested. The heliostat design effort is described, including reflecting surface materials and measurements, optic considerations and mirror field arrangements, mechanical analysis and fabrication techniques, and economics and cost effectiveness, measurements of normal incident solar energy at Upton, N. Y., are reported and a method is proposed for estimating this input parameter for other locations proposed.

# N80-12611# Ames Lab. lowa. PHOTOTHERMAL CONVERSION SURFACE MEASUREMENTS USING PHOTOACOUSTIC AND PHOTOTHERMAL SPECTROSCOPIES

J. F. McClelland and R. N. Kniseley 1978 31 p refs Presented at Seminar on Testing Solar Energy Mater. and Systems.

Washington, D.C. 22 May 1978 (Contract W-7405-eng-82)

(IS-M-202; CONF-780550-10) Avail: NTIS HC A03/MF A01 Photoacoustic and photothermal spectroscopic techniques have recently been under development in a number of laboratories. When applied to solar materials studies these techniques have the potential of providing a more direct measurement of photothermal conversion efficiency than conventional reflection or transmission measurements. Measurements are made by modulating the intensity of an incident light beam, which causes a temperature oscillation in the irradiated material under study, with the oscillation amplitude proportional to the absorbed and subsequently thermalized light energy. In the photoacoustic method the oscillation amplitude is measured by a transducer which detects an acoustical signal driven by the temperature oscillation. A thermal transducer is used as the detector in the photothermal technique. Spectral or integrated measurements are made using a monochromatic or broadband source with no correction needed for the spectral dependence of a detector since the signal is generated by the interaction of light with the sample rather than with a detector.

N80-12612# Comision Nacional de Energia Atomica, Buenos Aires (Argentina).

#### PHOTOTHERMAL CONVERSION OF SOLAR ENERGY INTO ELECTRICITY

Jaime A. Moragues 1978 37 p refs Transl. into ENGLISH from unidentified Argentine report (DOE-TR-159) Avail: NTIS HC A03/MF A01

Brief description of various collectors that can be used for electricity production by solar photothermal conversion are given including solar stills, shallow solar ponds, flat plate collectors, fixed collectors with moderate concentration, cylindrical-parabolic concentrators, fixed concentrators, fixed concentrators with faceted mirror, concentrations with concave rotating multiple mirrors, Fresnel lenses, paraboloidal rotating concentrators, semispherical fixed concentrators, central receiver system with linear focus, and central receiver system with point focus. Thermodynamic cycles, energy transport, energy storage, and economics are also discussed. A review of some of the programs throughout the world in development of solar thermal power conversion is included.

#### N80-12613# Energy Utilization Systems, Inc., Pittsburgh, Pa. RESEARCH AND DEVELOPMENT OF A HEAT AND PUMP WATER HEATER, VOLUME 1 Final Report

R. L. Dunning, F. R. Amthor, and E. J. Doyle Aug. 1978 69 p refs

(Contract W-7405-eng-26)

(ORNL/SUB-7321-1) Avail: NTIS HC A04/MF A01

An electric heat pump water heater with an operating efficiency of 2.5 in average conditions of 70 to 75 F ambient air and 55 to 60 F supply water was designed. Separate heat pump designs are available for new water heaters and for retrofitting of existing ones. The condenser is a dual tube direct immersion type which enters the tank through a special 4-in. hole in the top of new tanks. For retrofit units, the condenser is in the form of a helix and is screwed into the tank through the hole normally used by the lower resistance element. The payback period is dependent on the amount of hot water consumption and the price of electricity. In warm climates, the benefit/cost ratio will be improved by higher efficiency from warmer ambient air and by the value of free air conditioning and dehumidification provided while the unit is operating. In colder climates, the improved efficiency from colder supply water and the higher operating savings from higher kilowatt-hour use because of the cold water tend to offset the effect of the less favorable climate.

#### N80-12614# Centro de Estudios de la Energia, Madrid (Spain). PROJECT CESA-1, A 1 MW SOLAR POWER PLANT IN **ALMERIA**

1978 13 p Presented at Symp. on Solar Thermal Power Stations, Koeln, West Germany, 11 Apr. 1978 (AED-CONF-78-212-011; CONF-7804108-3) Avail: NTIS HC A02/MF A01

A solar energy utilization project to be carried out in Spain is described. The plant, CESA-1, is designed for a power of 1 MW. The technical data are given. The plant will start operation

N80-12615# Northeastern Legislative Leaders Energy Research Project, Albany, N. Y.

#### NATIONAL ENERGY ACT OF 1978: A REGIONAL ASSESSMENT

Peter R. Smith Dec. 1978 23 p (Grant NSF ISP-75-15817)

(PB-296479/9; NSF/RA-780608)

HC A02/MF A01 CSCL 10A

NTIS Avail:

The detailed requirements of the National Energy Act of 1978 is presented and the specific impacts for each of the requirements on the Northeastern states is discussed.

#### N80-12619 Iowa State Univ. of Science and Technology, Ames. A REGIONAL APPROACH TO FORECASTING ELECTRIC ENERGY REQUIREMENTS FOR ENVIRONMENTAL ASSESS-MENTS Ph.D. Thesis

Gerald Ray Hill 1979 253 p

Avail: Univ. Microfilms Order No. 7924484

A series of investigations was performed and a multistate procedure developed for use by states in environmental reviews. in assessing the need for adding generating capacity. The multistate procedure enables states to collectively develop a regional forecast of energy requirements, while maintaining individual decision-making authority. A regional demonstration project was utilized as a means for determining what procedural problems exist in developing multistate capabilities. The demonstration project consisted of three sequential applications of the procedure to utility service areas which operate in the southeast in more than one state. Forecasts of electricity consumption were developed and information compiled on future growth of residential, commercial and industrial sectors, by state and by service area. The procedure was applied to a hypothetical midwest/southeast two-state assessment to evaluate its transferability. Performance standards were identified and acceptance criteria established for the procedure. Dissert. Abstr.

N80-12624# Gulf Universities Research Consortium, Bellaire,

#### NATURALLY OCCURING CARBON DIOXIDE SOURCES IN THE UNITED STATES. A GEOLOGIC APPRAISAL AND ECONOMIC SENSITIVITY STUDY OF DRILLING AND PRODUCING CARBON DIOXIDE FOR USE IN ENHANCED OIL RECOVERY

F. W. Zimmerman and C. W. Perry May 1979 137 p refs (Contract EX-76-C-01-2025) (FE-2025-38: GURC-Rept-165) NTIS

HC A07/MF A01

Preliminary characterizations of reservoir rock quality and gas composition were performed for central Mississippi, West Virginia, the Delaware-Val Verde Basins of west Texas, and several locations in the Rocky Mountains. Four significant accumulations of carbon dioxide were chosen for in-depth geologic, reservoir, and economic analyses. Anticipated flowing pressure, sustained flow rates, recovery efficiencies, original gas in place, and reserves were determined. Sensitivity studies designed to bracket a possible range of prices were generated, utilizing estimated development and production costs, for each of the four areas. Projections of the potential supply, profitability of drilling and producing, and preliminary analysis of potential demand for naturally occurring carbon dioxide are presented.

N80-12625# California Univ., Livermore. Lawrence Livermore

#### NUMERICAL MODELING OF LNG SPILL PHENOMENA

W. J. Hogan, B. R. Bowman, and L. C. Haselman 13 Dec. 1978 18 p refs Presented at the Seminar on LNG Peak Shaving, Washington, D. C., 5 Mar. 1978 (Contract W-7405-eng-48)

(UCRL-82031; CONF-780387-1) Avail: NTIS

HC A02/MF A01

The phenomena that must be simulated in modeling postulated liquefied natural gas (LNG) spills are complex, and some are not thoroughly understood. These phenomena include differential boil-off, flameless vapor explosions, vapor dispersion, and various modes of combustion. Our modeling results indicate that differential boil-off will create an ethane-enriched portion of the vapor cloud and that this portion will persist for significant times. Dispersion-model predictions begin to disagree at spill sizes between 50 and 100 cu m. Thus, spill tests are needed for larger spills. Both simple and complex combustion models exist. However, uncertainties in the combustion efficiency, optical thickness of the fireball, and cooling effects make the results of these models difficult to interpret properly. They do show that the addition of as little as 5% ethane to a methane cloud would increase the detonability of the cloud eightfold. The state of numerical modeling for evaluating postulated LNG accidents indicates that the theoretical and experimental efforts must be carried out interactively.

N80-12628# California Univ., Livermore. Lawrence Livermore Lab. Energy and Resources Group.

### ENVIRONMENTAL ASPECTS OF ALTERNATIVE ENERGY TECHNOLOGIES FOR CALIFORNIA

J. P. Holdren, G. Morris, and G. Tanenbaum Nov. 1978 167 p. refs

(Contract W-7405-eng-48)

(UCRL-15002) Avail: NTIS HC A08/MF A01

The following topics are discussed: (1) cost benefit analysis of energy impacts on biological, geophysical, and social environments; (2) impacts of soft and transition technologies such as solar heat, onsite/central wind systems, waste/farm biomass systems, geothermal heat/electricity, hydroelectric dams, and fluidized bed coal burners; (3) observations on increased efficiency; and (4) needs for further work.

#### N80-12631# Argonne National Lab., III.

### COMBINED EFFECTS OF POLYCYCLIC AROMATIC HYDROCARBONS AND SUNLIGHT

H. Utsumi, G. R. Lakas, and M. M. Elkind 1979 15 p refs Presented at Park City Environ. Health Conf., Utah, 4-7 Apr.

(Contract W-31-109-eng-38)

(CONF-790447-4) Avail: NTIS HC A02/MF A01

Chinese hamster V79 cells were made photosensitive by dimethylbenzanthracene (DMBA) if the cells were treated with this PAH before, and not after, light exposure at wavelengths from approximately 290 to 400 nm. Samples of PAH's generated from a bench-scale pressurized fluidized bed coal combustion unit sensitized mammalian cells to sunlight-simulating light, although to a lesser extent than the DMBA. In addition, the photosensitization was shown to be a true photodynamic effect. Since all three factors (PAH's sunlight, and oxygen) necessary for the production of the phototoxic agent(s) would be expected to interact in the environment, the results are of particular concern to human health. Both PAH's and sunlight are known carcinogens and their interaction may result in a potentiation of their carcinogenic activities. In addition, the cytotoxicity produced could conceivably have a tumor promoting effect due to the resultant cellular repopulation.

N80-12637# TRW, Inc., Redondo Beach, Calif.

EMISSIONS ASSESSMENT OF CONVENTIONAL STATION-ARY COMBUSTION SYSTEMS. VOLUME 1: GAS- AND OIL-FIRED RESIDENTIAL HEATING SOURCES Final Report, Sep. 1976 - Mar. 1979

N. F. Surprenant, R. R. Hall, K. T. McGregor, and A. S. Werner May 1979  $\,$  177  $\,$ p  $\,$ refs

(Contract EPA-68-02-2197)

(PB-298494/6; EPA-600/7-79-029B) Avail: NTIS

HC A09/MF A01 CSCL 13B

Emissions from gas- and oil-fired residential heating sources were assessed through a critical examination of existing emissions data, followed by the conduct of a phased measurement program to fill gaps in the emissions data base. Mass emission rates of criteria pollutants, trace elements, and organics, including polycyclic organic matter (POM), were determined. Particulate sulfate, SO2, and SO3 emission data were also obtained at the

oil-fired sites. The results of the emissions assessment indicate that residential sources are of potential significance based on multiple source severity factors calculated for an array of houses burning gas or oil. Pollutants for which multiple source severity factors exceed 0.05 are NOx from gas-fired sources and SO3, and NOx, and Ni from oil-fired sources.

N80-12647# California Univ., Berkeley. Lawrence Berkeley

## CIRCUMSOLAR RADIATION DATA FOR CENTRAL RECEIVER SIMULATION

A. Hunt, D. Grether, and M. Wahig Aug. 1978 14 p ref Presented at ERDA Workshop on Methods for Optical Analysis of Central Receiver Systems, Houston, Tex., 10 Aug. 1978 (Contract W-7405-eng-48)

(LBL-8371; CONF-780885-1) Avail: NTIS HC A02/MF A01 The circumsolar measurement project carried out to provide data to assess the effects of circumsolar radiation on the operation of solar thermal conversion systems using concentrating collectors, especially central receiver systems is described. Four circumsolar telescopes were constructed and are providing detailed intensity vs. angle profiles of the solar and circumsolar region, as well as other solar and climatological data. Emphasis is on reducing the data and making it available to groups analyzing the performance of central receiver systems. In most highly concentrating solar systems, the size of the receiver is determined by the ray bundle originating from the most distant heliostat. If the bundle size is calculated by using the solar disc, it is clear that some fraction of the circumsolar radiation will fall outside the receiver aperture. The results provide the detailed type of input data for central receiver simulation codes that are necessary for determining these losses, optimizing the receiver or field size, and determining the distribution of stray flux due to circumsolar radiation.

N80-12668# Stockholm Univ. (Sweden). Dept. of Meteorol-

#### GLOBAL ECOLOGY AND MAN

Bert Bolin  $\ensuremath{\textit{In}}$  WMO On Climate and Mankind 1979 p 27-50 refs

Avail: NTIS HC A99/MF A01

The influence of man on regional and global processes within the biosphere is examined. Present knowledge on the carbon, nitrogen, sulphur and oxygen cycles is reviewed. An assessment of a possible future increase of atmospheric CO2 shows a large variation in predicted maximum concentration, depending on which assumption is adopted for CO2 adsorption by land biota. The response of the terrestrial and marine biota to a changing climate is discussed.

Author (ESA)

N80-12677# International Institute for Applied Systems Analysis, Laxenburg (Austria).

### ENERGY AND CLIMATE: A REVIEW WITH EMPHASIS ON GLOBAL INTERACTIONS

J. Williams, W. Haefele, and W. Sassin *In* WMO On Climate and Mankind 1979 p 267-289 refs

Avail: NTIS HC A99/MF A01

The potential impact of energy systems on climate and the implications of the present state of knowledge on energy policy decision making are discussed. The impact of climate on energy supply and demand is examined. The requirements for climate information necessary to improve the assessment of energy climate interaction are outlined.

Author (ESA)

N80-12689# World Meteorological Organization, Geneva (Switzerland).

### CLIMATIC VARIABILITY, MARINE RESOURCES AND OFFSHORE DEVELOPMENT

T. F. Gaskell (Oil Ind. Intern. Explor. and Produc. Forum, London) In its On Climate and Mankind 1979 p 633-651 refs

Avail: NTIS HC A99/MF A01

The activities being carried out in marine resource development are surveyed, including the construction of ports, harbors and other coastal facilities, and ship routing in difficult climate situations. The impact of climatic variation is usually more important when considering short-term weather forecasts, but extremes of climate and long-term trends are important if catastrophies of gross overdesign are to be avoided. Oil is likely to remain the most important marine resource for the next few decades. Manganese nodules and similar seabed mineral concentrations may be valuable in the future.

Author (ESA)

N80-12707# Northrop Services, Inc., Huntsville, Ala.
SOLAR-CLIMATIC STATISTICAL STUDY. SUMMARY REPORT, VOLUME 1

Roger E. Bray Feb. 1979 60 p refs 2 Vol. (Contract EG-77-C-01-4016)

(HCP/T4016-1) Avail: NTIS HC A04/MF A01

Data at 26 (SOLMET) National Weather Service stations were processed to provide preliminary planning data, in the form of statistical information, for selected daily average solar and wind conditions occurring and persisting for time periods of interest. Empirical probabilities were constructed from the historic solar and wind data to provide a reasonable inference of the chance of similar climatological conditions occurring at any given time. (Diurnal wind power variations were also considered). Data used to obtain the daily average solar and wind power probabilities were combined into monthly averages and are presented. Average monthly, seasonal and annual solar and wind power trends were

N80-12709# Sandia Labs., Albuquerque, N. Mex. Environmental Research Div.

prepared to provide an overview for identifying areas for further

WIND TIME SERIES ANALYSES FOR WECS APPLICATIONS

Jack W. Reed Dec. 1978 42 p refs

(Contract EY-76-C-04-0789)

investigation.

(SAND-77-1701) Avail: NTIS HC A03/MF A01

A methodology for wind power analyses of wind speed time series is described, including computation flow diagrams and a FORTRAN program listing. Examples of results are presented but complete outputs will follow in specialized reports. Primary calculation states are: (1) data homogenization for moved anemometers; (2) extrapolations to selected standardized heights; (3) distribution smoothing for observation bias; (4) power distribution function calculation; (5) turbine speed limit effects analysis; (6) time variability assessment; and (7) analysis of light wind durations.

N80-12710# Midwest Research Inst., Golden, Colo. WIND RESOURCE ANALYSIS

Donald M. Hardy Dec. 1978 20 p refs (Contract EG-77-C-01-4042)

(SERI/TR-36-088) Avail: NTIS HC A02/MF A01

Modern atmosphere models of near-surface wind flow and primary data sets were developed from previous studies of national and regional wind resources. Because numerous assumptions are necessary to interpret available data in terms of wind energy potential, conclusions of previous studies differ considerably. The primary data sets and principal features of the models are discussed.

N80-12881\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

RESULTS OF DUCT AREA RATIO CHANGES IN THE NASA LEWIS H2-O2 COMBUSTION MHD EXPERIMENT

J. Marlin Smith 1979 12 p refs Presented at 18th Aerospace Sci. Meeting, Pasadena, Calif., 14-16 Jan. 1980; sponsored by AIAA

(NASA-TM-79308; E-264) Avail: NTIS HC A02/MF A01 CSCL 20I

MHD power generation experiments utilizing a cesium-seeded H2-O2 working fluid were carried out using a diverging area Hall duct having an entrance Mach number of 2. The experiments were conducted in a high field strength cryomagnet facility at field strengths up to 5 tesla. The effects of power takeoff location, generator loading B field strength, and electrode breakdown voltage were investigated. The effect of area ratio, multiple loading of the duct, and duct location within the magnetic field are considered.

N80-12882# Argonne National Lab., III. Engineering Div. EXPERIMENTAL TWO-PHASE LIQUID-METAL MAGNETOHYDRODYNAMIC GENERATOR PROGRAM Final Report, Oct. 1977 - Sep. 1978

M. Petrick, G. Fabris, E. S. Pierson, A. K. Fischer, and C. E. Johnson Apr. 1979 214 p refs

(Contract N00014-78-F-0004)

(AD-A073128; ANL/MHD-79-1) HC A10/MF A01 CSCL 20/9 Avail: NTIS

The experimental results presented herein satisfy one major goal in demonstrating the technical feasibility of two-phase LMMHD (liquid-metal MHD), i.e., operating an MHD generator at power densities equal to or above that anticipated for practical power systems. Power densities of up to 32 MWe/m(3) and efficiencies higher than 0.6 at high void fractions were attained for a small 20 kWe generator. Slip ratio data, and more extensive pressure distribution and voltage profile data are also given. Barium has been identified as an attractive additive for the generation

N80-12894# Sandia Labs., Albuquerque, N. Mex.
USER'S MANUAL FOR THE MAGNETOHYDRODYNAMIC
GENERATOR CHANNEL CODE, MHDCHN

A. J. Russo Jan. 1979 52 p refs (Contract EY-76-C-04-0789) (SAND-78-1260) Avail: NTIS HC A04/MF A01

A two-dimensional steady state MHD generator channel code was developed to solve for the electric current density and potential field in a channel section. It was designed to operate with a companion fluid code, SCF, which supplies thermodynamic and velocity data as input; however, it may also be used independently or made to interact with other fluid codes. The program is currently

velocity data as input; however, it may also be used independently or made to interact with other fluid codes. The program is currently operational on the CDC 6600-7600 computer system. The equations that are solved and the input and output data that are required for operation of the code are described.

DOE

N80-12898# Westinghouse Electric Corp., Pittsburgh, Pa. Fusion Power Systems Dept

CONCEPTUAL DESIGN OF A DEMONSTRATION TOKAMAK HYBRID REACTOR (DTHR)

J. L. Kelley Dec. 1978 195 p refs (Contract EG-77-C-02-4544)

(WFPS-TME-107) Avail: NTIS HC A09/MF A01

The flexibility of the fusion hybrid reactor to function as a fuel production facility, power plant, waste disposal burner or combinations of all of these, as well as the reactor's ability to use proliferation resistant fuel cycles, has provided the incentive to assess the feasibility of a near-term demonstration plant. The goals for a Demonstration Tokamak Hybrid Reactor (DTHR) were established and an initial conceptual design was selected. Reactor performance and economics were evaluated and key developmental issues were assessed. The study has shown that a DTHR is feasible in the late 1980's, a significant quantity of fissile fuel could be produced from fertile thorium using present day fission reactor blanket technology, and a large number of commercially prototypical components and systems could be developed and operationally verified. The DTHR concept would not only serve as proof-of-principle for hybrid technology, but could be operated in the ignited mode and provide major advancements for pure fusion technology.

N80-12900# California Univ., Livermore. Lawrence Livermore Lab.

SEARCH FOR FUSION POWER

R. F. Post 12 Oct. 1978 16 p

(Contract W-7405-eng-48)

(UCRL-81890) Avail: NTIS HC A02/MF A01

The basics of fusion power are reviewed. Both inertial confinement and magnetic confinement fusion are discussed.

DOE

N80-12955# California Univ., Livermore. Lawrence Livermore Lab.

## NATIONAL ENERGY ACT OF 1978: FAR WESTERN PERSPECTIVE. A STUDY FOR THE US DEPARTMENT OF ENERGY, FEDERAL REGION 9

D. Dorn and P. Moulthroup 15 Dec. 1978 77 p (Contract W-7405-eng-48)

(UCID-17944-Rev-1) Avail: NTIS HC A05/MF A01

Information on the impact of the National Energy Act of 1978 (NEA) on Federal Region 9 was studied. The U.S. energy problem: the National Energy Act of 1978; the expected effects of the NEA on Federal Region 9 as a whole; and the expected impact of the NEA in Arizona, California, Hawaii, and Nevada are discussed.

N80-12957\*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, Md.

BALTIMORE APPLICATIONS PROJECT Annual Progress Report, Jun. 1978 - May 1979

Thomas S. Golden and Philip Yaffee Jun. 1979 16 p refs (NASA-TM-80577; APR-5) Avail: NTIS HC A02/MF A01 CSCL 05A

An update is presented for the following projects: (1) asphalt pavement recycling; (2) data collection platform/water quality monitoring; (3) digital emergency traffic routing; (4) fire department communications and dispatch system; (5) health department management information system; (6) hazardous materials; (7) coal gasification; and (8) emergency vehicle proximity sensing.

A.R.H.

## N80-12960# Cambridge Systematics, Inc., Mass. DEMAND FOR SPECIAL PERFORMANCE VEHICLES, 1975 - 2025

Sep. 1978 107 p refs (Contract W-7405-eng-48)

(UCRL-13911) Avail: NTIS HC A06/MF A01

Concepts were developed for alternative energy storage and propulsion systems for passenger cars and light trucks. These conceptual designs include battery electric systems, hydrogen powered systems, and the quasi-electric-drive hybrid with a small internal combustion engine (ICE) for range extension. The difference between the cost and performance of the special performance vehicles (SPVs) and ICEs was determined. The vehicle miles travelled by each SPV type were forecasted for 1975, 1985, 2000, and 2025. Market forecasts of SPVs in light truck applications and regional ton mile forecasts for heavy truck use were made for use in energy consumption and flow models. National aggregate forecasts of population, auto ownership, per capita income, vehicle miles travelled, ton miles, and other variables were also made.

# N80-12962# Mitre Corp., McLean, Va. THE STATUS OF ADVANCED PROPULSION SYSTEMS FOR URBAN RAIL VEHICLES Final Report, Oct. 1978 - May 1979

Vilas D. Nene May 1979 227 p refs (Contract DOT-UT-9002)

(PB-297980/5; MTR-79W0022; UMTA-VA-06-0053-79-1) Avail: NTIS HC A11/MF A01 CSCL 13F

With the advent of power electronics, more efficient alternate propulsion systems have been developed. These include chopper controls, ac drive with induction motors, systems using onboard energy storage, and ac drive with tabular axle motors. A technology review of advanced traction systems is presented, based on information and data gathered from propulsion equipment suppliers in Europe, Japan, and the United States. The status performance characteristics, significant advantages and disadvantages and the deployment of the hardware in revenue service for all these systems are discussed.

N80-12982# California Univ., Berkeley. Lawrence Berkeley Lab.
MEASUREMENT OF CIRCUMSOLAR RADIATION: STATUS REPORT

D. F. Grether, A. Hunt, D. Evans, and M. Wahig Sep. 1978 4 p refs Presented at the 3d Solar Heating and Cooling R and D Branch Contractors Meeting, Washington, D. C., 24 Sep. 1978

(Contract W-7405-eng-48)

(LBL-8391: CONF-780983-7) Avail: NTIS HC A02/MF A01 Four instruments systems, each of which contains a scanning telescope to make the circumsolar measurements, and includes standard solar and meteorological instruments, were deployed at sites of interest to various DOE programs utilizing concentrating collectors systems. The telescope remain more or less in the same place for a period on the order of a year, so that seasonal variations can be quantified. The data obtained are stored and processed, and the results made available to the various solar concentrating collector projects in a form appropriate to each project. These forms include: (1) sample scans of the telescope for a particular time or for a variety of conditions; (2) variation in solar and circumsolar radiation over the course of a day, month or year; and (3) detailed data suitable for input to computer-based simulations or solar energy conversion systems.

N80-12988\*# National Aeronautics and Space Administration. Goddard Space Flight Center, Greenbelt, Md.

### DETECTION OF HIGH ENERGY X-RAYS FROM THE GALACTIC CENTER REGION

B. R. Dennis, J. H. Beall, E. P. Cutler, C. J. Crannell, J. G. Dolan, K. J. Frost, and L. E. Orwig Oct. 1979 25 p refs Submitted for publication

(NASA-TM-80584) Avail: NTIS HC A02/MF A01 CSCL 03B

Observations of the galactic center region made with the high energy X-ray detector on OSO-8 are discussed. A strong hard X-ray which was detected during these observations from the vicinity of the galactic center are examined. The counting rate spectrum and the photon number spectrum of the flux are determined. Comparisons with the high energy X-ray fluxes observed from sources in the region by others are discussed.

A.W.H.

# N80-13267 Kansas Univ., Lawrence. BIOLOGICAL TRANSFORMATION OF LIGHT ENERGY INTO METHANE USING AN ANAEROBIC FILTER Ph.D. Thesis Vicente JonguitudFalcon 1979 225 p

Avail: Univ. Microfilms Order No. 7925875

The feasibility of a biological system in converting solar energy into the chemical energy of methane is demonstrated. The proposed system consists of two biological reactors, an algae unit and an anaerobic filter, working together to fix solar energy in the form of algae photoplasm which is then anaerobically digested to produce methane. The algae fixes light energy by synthesizing inorganic materials into new protoplasm. The algae protoplasm is fed to an anaerobic filter where it is metabolized by anaerobic microorganisms producing methane, CO2, and inorganic end products. These inorganic end products are recycled back to the algae unit where they are reused to form more algae protoplasm.

# N80-13272# Sandia Labs., Albuquerque, N. Mex. COAL LIQUEFACTION SHORT RESIDENCE TIME PROCESS RESEARCH Quarterly Report, 1 Oct. - 31 Dec. 1978 R. K. Traeger and T. C. Bickel Jul. 1979 27 p refs (Contract EY-76-C-04-0789)

(SAND-79-1400; QR-1) Avail: NTIS HC A03/MF A01

Preliminary concepts have been identified for residence time measurements and further studies are underway to evaluate performance under reaction conditions. Current concepts include: solid phase residence time-magnetic tracer particles or manganese oxide with neutron activation; and liquid phase residence time-reflectance IR or high speed sampling with an organic tracer, radioactive tracer. Limited viscosity and surface tension measurements have been performed in an effort to predict the reactor flow regime.

N80-13273# Department of Energy, Bartlesville, Okla. Energy Technology Center.

#### PHYSICAL PROPERTIES OF GASOLINE/ALCOHOL AUTO-MOTIVE FUELS

F. W. Cox 1979 14 p refs Presented at 3d Intern. Alcohol Fuels Technol. Symp., Asilomar, Calif., 28-31 May 1979 (CONF-790520-4) Avail: NTIS HC A02/MF A01

The physical property changes (both beneficial and detrimental) which occur when alcohols are added to gasoline as fuel extenders are considered. The experimental data and discussion of results cover four physical properly areas: water tolerance. vapor pressure, distillation characteristics, and octane quality. The alcohols include methanol, ethanol, n-propanol, i-butanol, and synthetic methyl fuel. Several additional alcohols were tested, but only as gasoline/methanol cosolvents. The interdependency among the variables which are responsible for the significant property changes was determined so that, where possible, gasoline/alcohol properties can be estimated from blend composition. Trends are also discussed in terms of the general influences of system variables.

#### N80-13274# Department of Energy, Bartlesville, Okla. DRIVING CYCLE COMPARISONS OF ENERGY ECONOMIES AND EMISSIONS FROM AN ALCOHOL AND GASOLINE FUELED VEHICLE

R. L. Bechtold and B. Pullman (Santa Clara Univ., Calif.) 1979 13 p refs Presented at 3d Intern. Alcohol Fuels Technol. Symp., Asilomar, Calif., 28 May 1979

(CONF-790520-7) Avail: NTIS HC A02/MF A01

A late-model vehicle was converted to operate using methanol. gasoline, or ethanol as fuel and experimental work was done to obtain energy economy and exhaust emissions data for each of the three fuels. Results are compared at equal equivalence ratios both with and without an oxidation catalyst in the exhaust system. Using a catalyst for emissions control, unburned hydrocarbon emissions were lowest during lean operating conditions and were nearly the same for all three fuels under those conditions. Oxides of nitrogen emissions typically were reduced by over 50 percent in changing from gasoline to methanol or ethanol. Photochemical reactivities were calculated and comparisons were made among the fuels during cold start and FTP weighted tests. Gasoline exhaust was often calculated to have the lowest total reactivity during the FTP, however, methanol exhaust reactivity was lowest for the stoichiometric condition with catalyst. DOF

N80-13275# Department of Energy, Bartlesville, Okla. Energy Technology Center.

#### THE 50,000 MILE METHANOL/GASOLINE BLEND FLEET STUDY Progress Report

K. R. Stamper 1979 14 p refs Presented at 3d Intern. Alcohol Fuels Technol. Symp., Asilomar, Calif., 28 May 1979 (CONF-790520-6) Avail: NTIS HC A02/MF A01

Seven current production automobiles are being used in a fleet study to obtain operational experience in using 10% methanol/90% gasoline blends as an automotive fuel. Data from chassis dynamometer tests (run according to the 1975-1978 Federal test procedure) show fuel economy and exhaust emissions of carbon monoxide, oxides of nitrogen, unburned fuel, methanol, and aldehydes. For each of the vehicles when operated on the 10% methanol blend, and on unleaded low octane Indolene. An average decrease in volumetric fuel economy (approximately 5%) and a reduction in carbon monoxide emissions were associated with the use of the 10% methanol blend. The most severe driveability problems encountered thus far are related to operating on a phase separated fuel and materials compatibility problems with an elastomer in the air-fuel control hardware of one vehicle.

N80-13277# Brookhaven National Lab., Upton, N. Y. REGENERATIVE PROCESS FOR DESULFURIZATION OF HIGH TEMPERATURE COMBUSTION AND FUEL GASES

Quarterly Progress Report, 1 Jul. - 30 Sep. 1978 M.-S. Shen and J. M. Chen 1978 72 p refs (Contract EY-76-C-02-0016)

(BNL-50944; QPR-10) Avail: NTIS HC A04/MF A01

A rotary kiln reactor was used to study the apparent solid-solid reaction between the sulfated limestone and the fly ash from a fluidized bed combustion. The experimental conditions were within the range for regeneration of the lime-based sorbents for fluidized-bed combustion. The measured SO2 concentrations were favorably interrelated with a derived mathematical model, with the major operating variables of the reactor, such as solid loading, temperature, gas flow rate, etc. The kinetic parameters of the regeneration reaction, the maximum attainable SO2 concentrations, and the effect of the molar ratio of C/S on the extent of CaSO4 conversion to CaO were obtained. Calcium silicate retained its activity when repeatedly cycled between sulfation and regeneration. A kiln reactor process for regenerating sulfated calcuim oxide reduces the environmental impact of fluid bed waste disposal and improves natural resource utilization.

#### N80-13279# Department of Energy, Washington, D. C. ENVIRONMENTAL ANALYSIS OF SYNTHETIC LIQUID **FUELS**

12 Jul. 1979 144 p refs

(DOE/EV-0044) Avail: NTIS HC A07/MF A01

There appears to be no absolute environmentally related constraint identified for any of the first-generation surface conversion technologies (shale oil, coal liquefaction, and biomass production of ethanol). Second-generation processes run greater risks of major environmental problems. For in situ processes, the major risk is leaching of hazardous materials into water; for direct liquefaction, concern is potential worker and public exposure to toxic substances. Yet-to-be-defined regulations are perceived by developers as major technology development impediments. These include air quality standards (visibility, short-term nitrogen oxide and new PSD regulations), regulation of hazardous wastes and toxic products, underground injection guidelines, and worker safety regulations. Some risk exists that environmental R and D programs cannot fully satisfy all existing and expected regulatory demands, but these risks should be known by 1985 and it is expected that appropriate control adjustments can be made.

#### N80-13280# Institute of Gas Technology, Chicago, III. RESEARCH AND DEVELOPMENT OF RAPID HYDROGENA-TION FOR COAL CONVERSION TO SYNTHETIC MOTOR FUELS (RISER CRACKING OF COAL) Quarterly Report, 1 Oct. - 31 Dec. 1978

Dennis A. Duncan Mar. 1979 46 p refs

(Contract EX-76-C-01-2307)

(FE-2307-46; QR-3) Avail: NTIS HC A03/MF A01

Work on processing of caking coals was continued and methods of pretreating caking coals were developed and demonstrated by sucessful runs in the bench-scale unit. Exploratory work done to evaluate the effects of bentonite clay, Iron oxide, and heating rate on the reaction system show that both bentonite clay and iron oxide have beneficial catalytic effects. Depth of carbon conversion was found to be more a function of severity of thermal treatment than heating rate over the range studied. Construction of the process development unit (PDU) continued, and much of the major equipment was received. Contracts were awarded for supplying high-pressure gases to the PDU. Fabrication of the preheater coil was completed, and construction of the preheater furnace is underway. Tests were continued in a low pressure simulator of a PDU combustor section, and for a coaxial construction, ceramic shields in the vicinity of the oxygen injection point do not appear to be necessary.

N80-13281# Institute of Gas Technology, Chicago, İll.
PREPARATION OF A COAL CONVERSION SYSTEMS TECHNICAL DATA BOOK, PROJECT 61003 Annual Report, 1 May 1977 - 30 Apr. 1978

Feb. 1979 577 p refs (Contract EX-76-C-01-2286)

(FE-2286-32) Avail: NTIS HC A25/MF A01

The calculation of gas phase fugacity in NH3-H2S-H2O and NH3-CO2-H2O systems is described. Vapor-Liquid Equilibrium data on cyclohexane-water and four binary hydrogen-solvent systems have been presented. Data obtained on true densities

of low rank coals and their chars are plotted as a function of hydrogen content (wt %, daf). Results of an investigation of formulas for calculating the heating value of coal from its composition are given. A formula, developed from the available data and having the least standard deviation is also presented. Data on minor and trace elements in coal are reviewed. A table of basic properties of pure components of coal liquids is included. Properties of benzene are presented in both S.I. and British Units. The theory of coal cleaning was discussed.

#### N80-13283# Mueller Associates, Inc., Baltimore, Md. STATUS OF ALCOHOL FUELS UTILIZATION TECHNOLOGY FOR STATIONARY GAS TURBINES

Richard L. Rentz and Thomas J. Timbario Apr. 1979 35 p

(Contract EX-76-C-01-2098)

(HCP/M2098-03) Avail: NTIS HC A03/MF A01

Efforts being made to establish the feasibility of alcohols as fuels for stationary gas turbines were reviewed to determine if the status of technology has been defined regarding modification necessary to convert existing stationary gas turbines for operation with alcohol fuels, and to determine if the status of technology has been defined for the design of new stationary gas turbines operating on alcohol fuels. Results are presented in a format which describes the test work performed and characterizes the status of alcohol fuels technology (relative to stationary gas turbines) based on this test work. An overview of various factors that, from a systems viewpoint, would need to be considered if a serious effort were made to utilize alcohols as fuels for stationary gas turbines is included

#### N80-13285# Department of Energy, Washington, D. C. COMMERCIALIZATION STRATEGY REPORT FOR COAL LIQUEFACTION

E. A. Loyd, B. C. Almuala, A. K. Ingberman, L. M. Joseph, N. Lobe, J. S. Siegel, M. I. Singer, and J. H. Smithson 35 p

(TID-28846) Avail: NTIS HC A03/MF A01

The commercial readiness of coal liquids is evaluated and barriers to be overcome are identified. It is concluded that: (1) coal liquids will address a major segment of the energy economy, petroleum and petroleum derived products; (2) methanol and Fischer-Tropsch processes are technically ready but economically uncompetitive: (3) scale up of direct hydrogenation processes to verify commercial feasibility requires major government funding; (4) federal assistance will probably be required for all first-of-a-kind commercial facilities; and (5) coal liquids will be economically competitive with imported petroleum by late 1980's or early 1990's. DOF

#### N80-13286# Department of Energy, Washington, D. C. COMMERCIALIZATION TASK FORCE FOR HIGH Btu GASIFICATION

P. Gallo, Richard Passman, Dave Beecy, Allyn Hemenway, Arthur Ingberman, and John Pulice 1979 38 p

(TID-28849) Avail: NTIS HC-A03/MF A01

The commercial readiness of high Btu gasification was investigated. It is found that the principal barriers to the commercialization of high Btu gas are: (1) the availability of capital, and (2) uncertainties regarding the marketability of supplies. Unless these barriers are removed, timely production of high-Btu gas is not likely to occur. A Federal role is recommended that would assist the private sector in capital formation with incentives that spread the financial risk appropriately among project beneficiaries. Of the incentives studied, two appear most effective: rolled-in pricing is seen as an important ingredient, especially in the early years of plant operation because of the high initial cost of gas; Federal loan guarantees are effective in assuring capital availability for the industry. Until loan guarantees become available, regulatory mechanisms provide the only remaining option. DOF

N80-13287# Gulf Research and Development Co., Pittsburgh,

RESEARCH AND DEVELOPMENT OF AN ADVANCED PROCESS FOR CONVERSION OF COAL TO SYNTHETIC GASOLINE AND OTHER DISTILLATE MOTOR FUELS Quarterly Report, Sep. 1978 - Nov. 1978

D. C. Succop and F. E. Wynne Dec. 1978 11 p (Contracts EX-76-C-01-1800; E(49-18)-1800) (FE-1800-33) Avail: NTIS HC A02/MF A01

Planned experiments to establish general ranges over which heater variables should be studied were completed. Unit modification was necessary to allow collection of high viscosity product from the heater outlet. Preliminary results indicate that increasing heater residence times and temperatures reduce the slurry viscosity by thermal cracking. At a low heater pressure of 1,000 psig and 2,000 scf/bbl of H2, heater slurry temperatures above 950 F resulted in increased viscosity and coking. DOE

N80-13288# Bituminous Coal Research, Inc., Monroeville, Pa. GAS GENERATOR RESEARCH AND DEVELOPMENT: BI-GAS PROCESS Monthly Progress Report, Apr. 1979

May 1979 233 p refs Prepared in cooperation with Phillips Petroleum Co., Homer City, Pa.

(Contract EX-76-C-01-1207)

(FE-1207-62; MPR-92) Avail: NTIS HC A10/MF A01

A life test of two Ni/Mo catalysts, as well as their predecessors, was completed. The results showed that the sample tested was essentially the same as its predecessor. Generally, the activity of the catalyst was close to that predicted by the life test data. Analytical and computer services continued in support of the overall program. A written description of the fluidized-bed methanation PEDU automated data acquisition and reduction systems was generated and is included.

N80-13289# Texaco, Inc., Montebello, Calif. GASIFICATION OF RESIDUAL MATERIALS FROM COAL LIQUEFACTION Quarterly Report, Oct. - Dec. 1978

Allen M. Robin Mar. 1979 13 p (Contract EX-76-C-01-2247)

(FE-2247-22) Avail: NTIS HC A02/MF A01

Materials from several coal liquefaction pilot plants were evaluated to determine their suitability as feedstocks for proprietary gasification processes. The chemical composition and physical properties of each material were determined. A preliminary pilot plant test was conducted. The operability of the process on the candidate feedstock was evaluated and estimates of preferred processing conditions, product gas yield and composition were made. R.E.S.

N80-13290# TRW Systems Group, McLean, Va. Energy Systems Planning Div.

METHANE RECOVERY FROM COALBEDS PROJECT. TECHNOLOGY TEST PROJECTS: EVALUATION OF CANDIDATE PROJECTS

Feb. 1979 25 p

(Contract EW-78-C-21-8089)

(METC-8089-T4) Avail: NTIS HC A02/MF A01

Twelve system test concepts for the recovery of methane from coalbeds and utilization of the gas in one or more applications are presented and evaluated. Four projects are recommended for further design development and analysis.

N80-13291# Gulf Research and Development Co., Pittsburgh,

RESEARCH AND DEVELOPMENT OF AN ADVANCED PROCESS FOR CONVERSION OF COAL TO SYNTHETIC GASOLINE AND OTHER DISTILLATE MOTOR FUELS Quarterly Report, Jun. - Aug. 1978

D. C. Succop and F. E. Wynne Sep. 1978 13 p (Contracts EX-76-C-01-1800; E(49-18)-1800) (FE-1800-30) Avail: NTIS HC A02/MF A01

Experimental results confirmed the predicted product liquid and coke yields for delayed coking or bituminous coal with petroleum vacuum residue. The expected modest synergism for liquid production was accompanied by synergistic improvement in liquid quality. Synergism was somewhat greater when undried sub-bituminous coal was used, confirming that coal slurries can be charged to delayed cokers and thereby release residual oil for incremental charging to fluid catalytic cracking. These results were used as the basis for a preliminary economic assessment of this medium impact interim process when used in existing petroleum refinery delayed cokers. DOF

N80-13292# Amoco Oil Co., Naperville, III. Research and Development Dept.

CATALYST DEVELOPMENT FOR COAL LIQUEFACTION Final Annual Report

R. J. Bertolacini, L. C. Gutberlet, D. K. Kim, and K. K. Robinson Jun. 1979 179 p refs Sponsored by EPRI (Research Proj. 408-1)

(EPRI-AF-1084; AR-3) Avail: NTIS HC A09/MF A01

New catalysts for the hydroliquefaction of coal to a cleanburning fuel for power generation were screened. The performance of the new catalysts is discussed along with the performance of various hydrogen donor solvents. Modifications in the product workup procedure are described. The effect of various impregnating aids, such as phosphoric acid, on initial performance was investigated. Numerous catalysts were tested further on the continuous pilot plant to establish how their aging behavior responds to changes in surface properties and catalytic metals. Aged catalysts were also characterized extensively to establish the reasons for deactivation.

N80-13293# Department of Energy, Washington, D. C. of Fossil Fuel Extraction.

#### UNDERGROUND COAL CONVERSION. PROGRAM DESCRIPTION

Jun. 1979 70 p refs

(DOE/ET-0100) Avail: NTIS HC A04/MF A01

Results of the program presented indicate that, while underground coal gasification (UCC) is technically feasible, it still contains some process unknowns, environmental risks, and economic risks that require R and D. In order to contribute to the national energy goals, a strong DOE program which incorporates maximum industry involvement is planned. Major projects are described in some detail. A strong program of supporting activities is expected to address specific problems identified in the field testing and in order to advance UCC technology. The elimination of the high-risk elements of UCC by resolving those technical, environmental, and economic uncertainties that remain, and to enable industry to assume responsibility for commercialization of the process was considered.

#### N80-13294# Brookhaven National Lab., Upton, N. Y. COAL CONVERSION IN FLASH HYDROPYROLYSIS REACTORS

Vi-Duong Dang and M. Steinberg May 1979 57 p refs Presented at the 87th AICHE Natl. Meeting, Boston, 19 Aug. 1979

(Contract EY-76-C-02-0016)

CONF-790822-5) (BNL-26209;

HC A04/MF A01

Analytical correlations of the experimental results for the Flash Hydropyrolysis of coal to gaseous and liquid hydrocarbons are presented. A three step reaction mechanism together with a particle-fluid interaction model is used to describe the system. The application of nonlinear estimation methods produces fair agreement between the experimental results and the postulated model. Explicit kinetic expressions as a function of temperature, pressure and reaction time for the reaction yields are developed. Reaction parameters for fluidized bed, entrained bed and fast

N80-13295# Oak Ridge National Lab., Tenn.

#### REVIEW OF SUPPORTING RESEARCH AT OAK RIDGE NATIONAL LABORATORY FOR UNDERGROUND COAL CONVERSION

fluidized bed designs are derived from the kinetic model.

P. R. Westmoreland and L. S. Dickerson 1979 14 p refs Presented at the 5th Underground Coal Conversion Symp., Alexandria, Va., 18 Jun. 1979

(Contract W-7405-eng-26)

(CONF-790630-9) Avail: NTIS HC A02/MF A01

Chemical and physical properties of lignite, subbituminous coal, bituminous coal, and overburden were measured. Generally, large, monolithic blocks of sample were dried and pyrolyzed. Thermal data and product yields can be correlated to provide an extrapolation from powder pyrolysis to the pyrolysis steps in underground coal gasification. Significant results include correlation of block pyrolysis data for low-rank coals, interpretation of mechanisms, and comparison between low-rank and bituminous coals, heating tests of overburden cores from the Hoe Creek field gasification site; and measurement of physical properties, particularly thermal diffusivity and thermal conductivity of low-rank coals. Correlations, mechanisms, and property measurements are reviewed, and applications to underground coal gasification are discussed.

### N80-13296# Los Alamos Scientific Lab., N. Mex. SYNFUEL (HYDROGEN) PRODUCTION FROM FUSION

R. A. Krakowski, K. E. Cox, J. H. Pendergrass, and L. A. Pooth 1979 6 p refs Presented at the 14th Intersoc. Energy Conversion Conf., Boston, 5 Aug. 1979

(Contract W-7405-eng-36)

(LA-UR-79-1115; CONF-790803-9) Avail: NTIS

HC A02/MF A01

A potential use of fusion energy for the production of synthetic fuel (hydrogen) is described. The hybrid-thermochemical bismuthsulfate cycle was as a vehicle to assess the technological and economic merits of this potential nonelectric application of fusion

#### N80-13297# Los Alamos Scientific Lab., N. Mex. LIQUID HYDROGEN AS AN AUTOMOTIVE FUEL

W. F. Stewart 1979 17 p refs Presented at the 1979 Cryog. Eng. Conf., Madison, Wis., 21-24 Aug. 1979 (Contract W-7405-eng-36)

(LA-UR-79-621;

CONF-790815-2)

HC A02/MF A01

Hydrogen fuel projects involving six vehicles and six hydrogen liquid container designs are discussed. It is shown that service (refueling) stations and bulk distribution systems can be built using present technology. These can be similar in concept to the present service stations and distribution systems. Vehicle refueling and bulk liquid hydrogen transfer will probably be computer controlled as completely as possible. Liquid hydrogen can begin its entry into the automotive fuel picture as a fuel for fixed base vehicles such as trucks, buses, taxis, etc., and expand into the private sector as its availability increases. DOE

N80-13318# National Engineering Lab., East Kilbride (Scotland). Systems Engineering Div.

#### ENERGY SAVING IN INJECTION MOLDING

G. Gardiner Jan. 1979 35 p Presented at Rubber and Plastics Res. Assoc. Seminar, 1 Feb. 1978

(NEL-662) Avail: NTIS HC A03/MF A01

Power consumption in an injection molding plant was studied and tests on an injection molding machine during a specific work cycle were made. The results clearly establish the energy losses which are present in many injection molding plants. By converting the plant to hydraulic drives and centralized hydraulic power supply, most of the losses could be eliminated. Supporting results of tests on a converted injection molding machine operating from a single hydraulic power source, simulating a centralized hydraulic power supply are also included. Author (ESA)

N80-13362\* # TRW Defense and Space Systems Group, Redondo Beach, Calif. Power Conversion Electronics Dept. HEAT PIPE COOLED POWER MAGNETICS

M. S. Chester Dec. 1979 176 p Revised (NASA-CR-159659; TRW-33572-6001-RU-00)

Avail: NTIS

HC A09/MF A01 CSCL 09A

A high frequency, high power, low specific weight (0.57 kg/kW) transformer developed for space use was redesigned with heat pipe cooling allowing both a reduction in

136

NTIS

Avail:

weight and a lower internal temperature rise. The specific weight of the heat pipe cooled transformer was reduced to 0.4 kg/kW and the highest winding temperature rise was reduced from 40 C to 20 C in spite of 10 watts additional loss. The design loss/weight tradeoff was 18 W/kg. Additionally, allowing the same 40 C winding temperature rise as in the original design, the KVA rating is increased to 4.2 KVA, demonstrating a specific weight of 0.28 kg/kW with the internal loss increased by 50W. This space environment tested heat pipe cooled design performed as well electrically as the original conventional design, thus demonstrating the advantages of heat pipes integrated into a high power, high voltage magnetic. Another heat pipe cooled magnetic, a 3.7 kW, 20A input filter inductor was designed, developed, built, tested, and described. The heat pipe cooled magnetics are designed to be Earth operated in any orientation.

N80-13375# Sandia Labs., Albuquerque, N. Mex.
EFFECTS OF METALLURGICAL MICROSTRUCTURE OF
ARMATURES ON COMPRESSED MAGNETIC FIELD
GENERATORS

A. E. Binder and T. V. Nordstrom 1979 27 p refs Presented at the 2d Intern. Conf. on Megagauss Magnetic Field Generation and Related Topics, Washington, D.C., 29 May 1979 (Contract EY-76-C-04-0789)

(SAND-79-0890C; CONF-790540-3) Avail:

HC A03/MF A01

Avail: NTIS

Methods for improving uniform expansion behavior of compressed magnetic field device armatures were studied. Initial microstructure of the copper tubes was altered in a controlled manner by using different forming techniques and alloying. Results show a 25 to 50 percent improvement in uniform explosive expansion radius for electroformed and spun copper armatures compared to standard armatures machined from drawn tubing. Expansion improvement was correlated with changes in the mechanical texture due to forming. The smoother expansion, however, did not result in a significantly higher electrical efficiency with the armature parameters tested.

# N80-13377# Lincoln Lab., Mass. Inst. of Tech., Lexington. CLASSIFICATION AND TECHNICAL REVIEW OF dc-ac INVERTERS FOR USE IN PHOTOVOLTAIC POWER SYSTEMS

E. E. Landsman 30 Apr. 1979 37 p refs (Contract EY-76-C-02-4094)

(COO-4094-25) Avail: NTIS HC A03/MF A01

A classification system is presented for stand-alone and utility-interactive dc-to-ac inverters used in photovoltaic systems in the 1-to-100-kVA power range. Additional inverter topologies, noted during the classification process, are introduced. To provide background, generally used dc-to-ac inversion technology is reviewed. Relative merits and liabilities of available power devices are discussed and device protective techniques are reviewed. Maximum power point tracking can enhance system value in utility-interactive no-battery photovoltaic power systems. This general theory is reviewed and an improved implementation is described.

N80-13412# Oak Ridge National Lab., Tenn. Engineering Tech. Div.

## CONDENSATION AND EVAPORATION HEAT TRANSFER WITH LOW-BOILING TEMPERATURE FLUIDS

R. W. Murphy and H. W. Hoffman 1979 4 p Presented at Southeastern Seminar on Thermal Sci., SESTS, Boca Raton, Fla., 10 May 1979

(Contract W-7405-eng-26)

(CONF-790539-1) Avail: NTIS HC A02/MF A01

Heat transfer research related to OTEC and geothermal energy conversion power cycles is reviewed.

## N80-13431# Sandia Labs., Albuquerque, N. Mex. DEVELOPMENT OF IN SITU MARINE SEISMIC AND GEOTECHNICAL INSTRUMENTATION SYSTEMS

E. W. Reece 1979 18 p refs Presented at DOE Symp. on Enhanced Oil and Gas Recovery and Improved Drillings Technol., Tulsa, Okla., 22 Aug. 1979

(Contract EY-76-C-04-0789) (SAND-79-0868C; CONF-790805-3) HC A02/MF A01

Avail: NTIS

A pair of in situ marine geotechnical instrumentation systems, capable of operating unattended for extended periods of time in remote locations, were designed and fabricated, and are currently undergoing testing. The seafloor earthquake measurement system measures the response of marine sediments to strong and moderate seismic activity. The geotechnically instrumented seafloor probe measures the in situ pore pressure in soft marine clays. The two systems have many common characteristics. Both systems consist of two principal subsystems: a seafloor data gathering package and a shipboard command and recording package. The seafloor packages are totally self-contained, and incorporate microprocessor-based electronics which control data collection, processing, and storage. Data collected and stored by the seafloor packages are transmitted on command to the command and recording package by a high-data-rate acoustic telemetry system.

N80-13480# McAlvery and Associates, Hoboken, N. J. IMPACT OF FLYWHEEL-TRANSMISSIONS ON AUTOMOBILE PERFORMANCE: A LOGICAL BASIS FOR EVALUATION

R. F. McAlvery, III 9 Apr. 1979 31 p refs (Contract W-7405-eng-48)

(UCRL-52758) Avail: NTIS HC A03/MF A01

The application of flywheel-transmissions to electric vehicles and to petroleum-fueled automobiles was analytically investigated. Simple algebraic equations were developed that describe an automobile's total (laden) mass and energy economy as a function of mission requirements (i.e., payload, range, and drive-cycle acceleration demand). The equations can be used to evaluate the impact of a flywheel-transmission on an automobile's mass and energy economy.

N80-13490\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

## MODIFIED AEROSPACE RELIABILITY AND QUALITY ASSURANCE METHOD FOR WIND TURBINES

William E. Klein 1980 9 p Proposed for presentation at the Ann. Reliability and Maintainability Symp., San Francisco, 22-24 Jan. 1980

(NASA-TM-79284; DOE/NASA/20370-79/18; E-211) Avail: NTIS HC A02/MF A01 CSCL 14D

The safety, reliability, and quality assurance (SR&QA) approach developed for the first large wind turbine generator project is described. The SR&QA approach was used to assure that the machine would not be hazardous to the public or operating personnel, would operate unattended on a utility grid, would demonstrate reliable operation and would help establish the quality assurance and maintainability requirements for future wind turbine projects. A modified failure modes and effects analysis during the design phase, minimal hardware inspections during parts fabrication, and three simple documents to control activities during machine construction and operation were presented.

R.C.T.

N80-13582# Department of Energy, Washington, D. C. Office of Basic Energy Sciences.

### SUMMARIES OF PHYSICAL RESEARCH IN THE GEOSCIENCES

Aug. 1979 65 p refs

(DOE/ER-0030) Avail: NTIS HC A04/MF A01

The Earth, atmospheric, and solar/terrestrial sciences which relate to the development of energy technology are summarized. The topics covered include: geology, geophysics, and Earth dynamics: geochemistry; energy resource recognition, evaluation, and utilization; hydrologic and marine sciences; and solar-terrestrial/atmospheric interactions.

N80-13601\*# National Aeronautics and Space Administration.
Marshall Space Flight Center, Huntsville, Ala.
DEVELOPMENT OF MINING GUIDANCE AND CONTROL
SYSTEMS Annual Report, Oct. 1976 - Sep. 1977

May 1979 225 p refs (Contract DI-BM-H0155092)

(NASA-TM-78226; ALW-11) Avail: NTIS HC A10/MF A01 CSCL 08I

New fundamental interface sensor concepts were identified and investigated including tabulation of the physical and performance characteristics of two new interface detector concepts: - natural background radiation and magnetic spin resonance. Studies of guidance and control techniques for the longwall miner identified three basic systems for use in automated/ remote controlled longwall mining. The following projects were initiated: system study which will more completely define the longwall guidance and control system design concepts; integration of the various control functions (vertical, yaw, and roll); and hardware technical requirements.

N80-13605# Oak Ridge National Lab., Tenn. GEOPRESSURE ENERGY RESOURCE EVALUATION G. Samuels May 1979 76 p refs (Contract W-7405-eng-26)

(ORNL/PPA-79/2) Avail: NTIS HC A05/MF A01

The geopressured aquifers that extend along the northern Gulf of Mexico are perhaps the largest potential source of geothermal energy and natural gas in the United States. Because of the high cost of completing wells into these formations and their relatively low temperatures (200 to 400 F), the utilization of the geothermal energy will be highly dependent on, and of secondary importance to, the value of the methane. The economics of extracting either the geothermal energy or natural gas from these aquifers does not look promising. The combined requirements of high well flow rates (40,000 bbl/day), long life (20 years), and the necessity for close well spacing to minimize the cost of the collection system may be incompatible with the actual characteristics of the reservoirs. These factors place such stringent requirements on the reservoir size, permeability, and compressibility, or specific storage coefficient, that the number of promising production areas may be severely limited.

N80-13607# Department of Energy, Washington, D. C. Energy Information Administration.

CURRENT U. S. PETROLEUM SITUATION AND SHORT-TERM SUPPLY/DEMAND OUTLOOK

Emil L. Nelson, G. D. Butler, C. Dwyer, and S. Wagner Jun. 1979 50 p

(DOE/EIA-0184/5) Avail: NTIS HC A03/MF A01

Potential U.S. supply shortfalls indicate that U.S. consumption of petroleum products could not rise above the low end of the projected range without driving petroleum inventories down below generally accepted target levels to enter the 1979-1980 winter heating season. Preliminary data indicate that U.S. petroleum demand for the first quarter of 1979 appears to have been between the low and medium levels projected by the demand models. Estimated demand during April and May, when allocation of scarce supply appears to have limited the effective demand, falls below the low of the projected range by some 1/2 million barrels daily. Unless world supply conditions change significantly in the coming months, the analysis indicates that the United States may experience continual limitations on imports requiring effective efforts to limit consumption and make maximum use of alternative fuels.

N80-13617 Pittsburgh Univ., Pa. THEORETICAL ANALYSIS OF MULTI-CELL, HIGH EF-FICIENCY BROAD SPECTRAL SENSITIVITY SOLAR CELLS Ph.D. Thesis

Richard Joseph McPartland 1978 227 p Avail: Univ. Microfilms Order No. 7924749

A new scheme for interconnecting cells with different band gaps is described. This scheme allows for epitaxial device fabrication without intervening metallic layers or grids by employing a tunnel junction as an interface between the cells. Using this interface, a two-cell solar cell structure is proposed; npp+n+pp+. The npp+n+ portion has a wider band gap than the pp+ portion of the cell. A theoretical model is developed to be used as a design aid prior to device fabrication, to allow

optimization of the solar cell's design, and to predict conversion efficiencies. The three components of the model are: the npp+ low-high junction (L-H junction) homojunction solar cell model; the n+pp+ L-H junction heterojunction solar cell model; and the p+n+ tunnel junction model. The current-voltage characteristics of the tunnel junction are represented by surfacerecombination-velocities (SRVs) at either side of the junction's space-charge-layer. Dissert. Abstr.

N80-13319\*# National Bureau of Standards, Boulder, Colo. Electromagnetic Fields Div.

COMPARISON OF CENTRIFUGE AND FREEZING CALOR-IMETER METHODS FOR MEASURING FREE WATER IN SNOW

R. N. Jones May 1979 44 p refs Sponsored by NASA (NASA-CR-162504; PB-296321/1; NBSIR-79-1604) NTIS HC A03/MF A01 CSCL 14B

A comparison of two popular methods; namely, the centrifuge and the freezing calorimeter is presented. Results from measurements over a two-month period in the Colorado mountains in the winter of 1978 indicate serious disagreement between these two methods. Some reasons for the disagreement are presented and verified. This raises some important questions pertaining not only to what the two methods actually measure, but also which methods may be appropriate for particular applications.

N80-13622\* # TRW Defense and Space Systems Group, Redondo Beach, Calif.

PEP SOLAR ARRAY DEFINITION STUDY Final Programmatic Report

30 Oct. 1979 82 p refs (Contract NAS9-15870)

(NASA-CR-160398; TRW-35515-6002-RU-00) Avail: NTIS HC A05/MF A01 CSCL 10A

The power extension package (PEP) is a solar array system that will be used on the space transportation system to agument the power of the Orbiter vehicle and to extend the time the vehicle may stay in orbit. The baseline configuration of the PEP is reviewed. The programmatic aspects of the design covering the development plan, the manufacturing facility plan and the estimated costs and risks are presented.

N80-13623\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

MODIFIED POWER LAW EQUATIONS FOR VERTICAL WIND PROFILES

D. A. Spera and T. R. Richards 1979 13 p refs Presented at the Wind Characteristics and Wind Energy Siting Conf., Portland, Oreg., 19-21 Jun. 1979 Sponsored by DOE, American Meteorological Soc., Pacific Northwest Lab. (E(49-26)-1059)

(NASA-TM-79275; DOE/NASA/1059-79/4) Avail: NTIS HC A02/MF A01 CSCL 10A

Equations are presented for calculating power law exponents from wind speed and surface roughness data. Results are evaluated by comparison with wind profile data measured at a variety of sites. Author

N80-13624\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

LOW NO(X) HEAVY FUEL COMBUSTOR PROGRAM

Eric Lister (DOE, Germantown, Md.), Richard W. Niedzwiecki, and Lester Nichols [1979] 15 p To be presented at 25th Ann. Intern. Gas Turbine Conf., New Orleans, 9-13 Mar. 1980; sponsored by ASME

(Contract EC-77-A-31-1062)

(NASA-TM-79313; E-269; DOE/NASA/1062-79/3) Avail: NTIS HC A02/MF A01 CSCL 10B

The 'low nitrogen oxides heavy fuel combustor' program is described. Main program objectives are to generate and demonstrate the technology required to develop durable gas turbine combustors for utility and industrial applications, which are capable of sustained, environmentally acceptable operation with minimally processed petroleum residual fuels. The program will focus on 'dry' reductions of oxides of nitrogen, improved combustor durability, and satisfactory combustion of minimally processed petroleum residual fuels. Other technology advancements sought include: fuel flexibility for operation with petroleum distillates and residual fuels, and synfuels (fuel oils derived from coal or shale): acceptable exhaust emissions of carbon monoxide, unburned hydrocarbons, sulfur oxides and smoke; and retrofit capability to existing engines.

R.E.S.

N80-13625# Engelhard Minerals and Chemicals Corp., Edison, N. J. Research and Development Dept.

DESIGN AND DEVELOPMENT OF A 30 WATT SOLID POLYMER ELECTROLYTE FUEL CELL POWER SOURCE FUELED WITH CALCIUM HYDRIDE Final Technical Report

O. Adlhart 12 Dec. 1978 26 p (Contract DAAK70-77-C-0222) (AD-A071157) Avail: NTIS HC A03/MF A01 CSCL 10/2

In recent years MERDCOM has shown renewed interest in the Solid Polymer Electrolyte Hydrogen-Air Fuel Cell. It focuses on the broad spectrum of applications where power requirements are quite small ranging from fractions of a watt to a few hundred watts. Handling simplicity and versatility are of utmost importance in this power range. The SPE cell is uniquely suited. It is operative at ambient temperatures, is rugged and has excellent life characteristics. Combined with a solid hydrogen source such as calcium hydride or magnesium, high energy densities are attainable. A 24 volt 30 watt device was developed under the

It is operative at ambient temperatures, is rugged and has excellent life characteristics. Combined with a solid hydrogen source such as calcium hydride or magnesium, high energy densities are attainable. A 24 volt, 30 watt device was developed under the contract consisting of a static SPE stack integrated with a hydrogen generator utilizing cartridge contained calcium hydride. Even in short missions of a few hours energy densities are well in excess of those obtained with secondary batteries.

N80-13627# Idaho National Engineering Lab., Idaho Falls.
ANALYSIS OF BINARY THERMODYNAMIC CYCLES FOR
A MODERATELY LOW-TEMPERATURE GEOTHERMAL
RESOURCE

O. J. Demuth Jul. 1979 105 p refs (Contract EY-76-C-07-1570)

(TREE-1365) Avail: NTIS HC A06/MF A01

Cycles were screened which included isobutane, pentane, cis-2-butene, and several mixed-hydrocarbon working fluids. Dual-and triple-boiling cycles were analyzed. Both shell-and-tube and direct-contact boilers, heaters, and condensers were assessed. A geothermal fluid (geo-fluid), typical of Raft River resource conditions was assumed, which has a temperature of 290 F and 52 parts per million dissolved nitrogen. Special emphasis in the analyses was directed toward investigation of several methods for keeping the loss of working fluid for the cycle at an acceptable level. It was concluded that for the Raft River geo-fluid, the direct-contact cycle has a potential for net geo-fluid utilization effectiveness values, (watt-hr/lbm geo-fluid) equivalent to those of the shell-and-tube cycle. Because of the lower cost of direct-contact components, a potential exists for the direct-contact plant to produce lower cost electrical energy than a comparable shell-and-tube plant.

N80-13628# General Electric Co., Schenectady, N. Y. Electric Utility Systems Engineering Dept.

REQUIREMENTS ASSESSMENT OF WIND POWER PLANTS IN ELECTRIC UTILITY SYSTEMS. VOLUME 3: APPENDIXES Final Report

W. D. Marsh Jan. 1979 95 p refs Sponsored by Elec. Power Res. Inst.

(EPRI-ER-978-Vol-3) Avail: NTIS HC A05/MF A01

A rational approach to the consideration of wind power plants applied to electric utility systems was developed. Then a requirements assessment and preliminary impact and penetration analyses were performed by studying wind generation in three actual utility systems. Conventional utility loss-of-load probability and production simulation methods were used together with a wind turbine generator performance model developed for the

study. Evaluations were based on comparison of total utility generation system costs with and without wind plants, and were expressed in terms of wind power plant value and cost. (Value is measured by the value of displaced energy and capacity of conventional power plants. Cost consists of the capital, and operating and maintenance costs of the wind plant.)

DOE

N80-13629# Argonne National Lab., III.
WORLD ENERGY DATA SYSTEM (WENDS). VOLUME 7:
NUCLEAR FACILITY PROFILES, AG-CH

Jun. 1979 254 p

(Contract W-31-109-eng-38)

(ANL-PMS-79-2-Vol-7) Avail: NTIS HC A12/MF A01

Capsule summaries of pertinent facts regarding nuclear facilities are presented. The facilities described include the entire fuel cycle from resource recovery to waste management. Power plants and all U.S. facilities are excluded.

N80-13630# Argonne National Lab., III.

WORLD ENERGY DATA SYSTEM (WENDS). VOLUME 8: NUCLEAR FACILITY PROFILES, CO-HU

Jun. 1979 234 p refs

(Contract W-31-109-eng-38)

(ANL-PMS-79-2-Vol-8) Avail: NTIS HC A11/MF A01

Pertinent facts regarding nuclear facilities are summarized. The entire fuel cycle from resource recovery through waste management is covered. The profiles are ordered by country name, and then by facility code.

DOE

N80-13631# Oak Ridge National Lab., Tenn.
LOW-TEMPERATURE THERMAL ENERGY STORAGE
PROGRAM ANNUAL OPERATING PLAN

D. M. Eissenberg and H. W. Hoffman Aug. 1979  $\,$  65 p  $\,$  refs (Contract W-7405-eng-26)

(ORNL/TM-6934) Avail: NTIS HC A04/MF A01

The development of technologies for storing thermal energy as low temperature sensible or latent heat is considered along with cost effective systems for collecting, storing, and discharging low thermal energy, which will have significant national impact on energy conservation in the near- and mid-term. Emphasis is placed on, seasonal thermal storage, and recovery and reuse of waste heat. Fiscal data are summarized according to trirust area, individual efforts, and funding source.

R.C.T.

### N80-13632# Brookhaven National Lab., Upton, N. Y. HYDROGEN-HALOGEN ENERGY STORAGE SYSTEM

J. McBreen, S. Srinivasan, F. J. Salzano, and A. H. Beaufrere Sep. 1978 60 p refs (Contract EY-76-C-02-0016)

(BNL-50924) Avail: NTIS HC A04/MF A01

Electrochemical investigations, materials studies, and technoeconomic assessment were performed on the electrochemically regenerative hydrogen-chlorine energy storage system. Electrochemical studies confirmed the reversibility of the cell reactions and the possibility of using the same cell in the electrolysis and fuel cell mode. A detailed heat and mass balance analysis was carried out for the H2/Cl2 system for one method of reactant storage and two schemes of heat exchange between the hydrochloric acid storage subsystem and the reactant storage subsystems. Nafion membranes in H2/Cl2 cell were characterized. From a cost comparison on a 20 MW/200 MWh electrochemically regenerative hydrogen-halogen system it was concluded that the use of either chlorine or bromine or alternative methods of chlorine storage had an insignificant effect on the overall cost of the system. The most cost effective method of hydrogen storage is very dependent on the cost activated metal hydrides.

N80-13633# Planco, Inc., Dallas, Tex.
SURVEY OF THE RESEARCH INTO ENERGY-ECONOMY

INTERACTIONS. VOLUME 1: SURVEY

R. Coates, D. Hanson, S. Juenger, and J. Kennington Apr. 1979 248 p refs

(Contract El-78-C-01-6346)

(HCP/I6346-01-1-Vol-1) Avail: NTIS HC A11/MF A01

A detailed and comprehensive review of recent (1960 to present) and on-going research into energy-economy interactions

is presented. The results form theoretical and empirical analyses of energy-macroeconomics interactions, the different methodologies used, and the conceptual problems in this research are emphasized. The supply of energy, the price of energy, the world price of oil, energy capital requirements, energy R and D. conservation regulations, and stockpiling are among the variables studied. A conceptual framework for analyzing energy-economy models, the general features and methodologies of a large number of models, and the state of the art in modeling energy-economy interactions are included. Six different energy-economy models: Manne's ETA-MACRO and ETA, Hudson-Jorgenson's LITM, PILOT, Wharton Annual Energy, Reister-Edmonds, and Berkeley (Giassey-Benenson) are reviewed. Each review describes the methodology and general features embodied in the model, summarizes the types of energy-economy interactions addressed, and assesses the capabilities of the model.

#### N80-13634# Los Alamos Scientific Lab., N. Mex. ENERGY POLICY AND DECISION ANALYSIS; NEW **CONCEPTS AND MECHANISMS**

E. L. Kaufman and R. W. Vogel Jul. 1979 52 p refs (Contract W-7405-eng-36)

(LA-7909-MS) Avail: NTIS HC A04/MF A01

Relevant portions of the energy-management problem and a technique wherein objective energy policy analysis can be performed in a short time frame are described. A precept for decision criteria is proposed and a set of fundamental concepts are described that allow quantitative assessment of policy and decision consequences for the total energy system. A decision conferencing is described wherein the technical assessment is combined with the political acumen of experienced decision makers to allow the best public-interest choice to be made. A rationale is also presented for the organizational placement of the analysis function, outside of government or industry. This placement provides a much needed level of credibility, higher than that which presently exists, and reduces bias and equitably balance the needs of the public, government, and industry. DOE

#### N80-13635# Midwest Research Inst., Golden, Colo SOLAR ENERGY PERSPECTIVES FOR PUBLIC POWER

N. H. Woodley Jun. 1979 22 p refs Presented at Am. Public Power Assoc., 1979 Natl. Conf., Seattle, 19 Jun. 1979 (Contract EG-77-C-01-4042)

(SERI/TP-35-300; CONF-790685-1) Avail: NTIS

HC A02/MF A01

Perspectives on the utilization of solar energy for electricity production and thermal energy utilization by the public are briefly summarized. Wind energy conversion, biomass conversion, solar thermal, OTEC, photovoltaics, and solar heating and cooling are discussed.

#### N80-13636# Argonne National Lab. III.

#### ASSESSMENT OF STIRLING ENGINE POTENTIAL IN TOTAL AND INTEGRATED ENERGY SYSTEMS

T. J. Marciniak, J. C. Bratis, A. Davis, and C. Lee Feb. 1979 167 p refs

(Contract W-31-109-eng-38)

(ANL/ES-76) Avail: NTIS HC A08/MF A01

The advantages and disadvantages of large Stirling engines in total, or integrated, energy systems are discussed and the performance and cost characteristics of such engines are analyzed and compared with the main competitors (diesel engines and gas turbines) for such applications. The comparisons are made through simplified and detailed systems analyses. The requirements for the development of a large Stirling engine are outlined along with a suggested developmental program based on the systems studied and intercomparisons of competing technologies. Results indicate that, given the attributes of the competing technologies involved, the main advantage of the Stirling engine lies in its ability to use fuels other than distillates. This attribute must be developed further in order to provide engine technologies which can burn abundant fuels such as coal or coal-derived fuels. The potentially high efficiency of Stirlings would be especially advantageous in applications where a high electrical-to-thermal energy demand ratio exists.

N80-13637# Department of Energy, Washington, D. C. Div. of Electric Energy Systems.

#### SYSTEMS ENGINEERING FOR POWER, PROGRAM REPORT

Jun. 1979 372 p (DOE/ET-0012/2-Rev) Avail: NTIS HC A16/MF A01

The development of the conceptual tools needed for the planning, engineering, and operation of the electric energy systems of the future is discussed. Three areas of increased complexity in the electric energy field are addressed. They are the increasing degree of interconnection between operating areas, the development of new technologies, and a continual tightening of the constraints within which the electric energy system must operate, including financial, environmental and conservation constraints. Each of these driving forces has implication for system operation (control) and for system design (planning). The subprograms which have thus far been developed for control and planning

N80-13638# California Univ., Livermore. Lawrence Livermore Lab.

#### ENERGY SYSTEM IN THE FAR WEST: IMPACTS OF THE **NATIONAL ENERGY ACT OF 1978**

B. Hammond (California Univ., Berkeley), T. Bradshaw (California Univ., Berkeley), and D. Dorn 6 Apr. 1979 46 p refs (Contract W-7405-eng-48)

(UCRL-52754) Avail: NTIS HC A03/MF A01

The impact of the National Energy Act of 1978 (NEA) on state energy systems in Federal Region IX (Arizona, California, Hawaii, and Nevada) is discussed. Data on the demographic and economic character of the region are presented along with an overview of the impact of the NEA on each energy industry in the region. The act's impact on interstate linkages and the reliability of energy supplies is also assessed. It is concluded that the NEA will serve to encourage actions already being taken by many of the utilities, but that it will not effect major changes in existing patterns of energy use.

N80-13640# Sandia Labs., Albuquerque, N. Mex. Applied Mechanics Div.

#### RECENT SPIN TEST OF TWO COMPOSITE WAGON WHEEL **FLYWHEELS**

A. K. Miller 1979 12 p refs (Contract EY-76-C-04-0789)

(SAND-79-1669C) Avail: NTIS HC A02/MF A01

The dynamic behavior of two structurally dissimilar flywheels was compared. In one design, the graphite/epoxy rim was attached to the aluminum hub with twenty-four thin Kevlar-49/epoxy spokes, while in the other design eight thicker graphite/epoxy spokes connected the rim to the hub. Horizontal disturbances of the flywheel hub were detected for speeds less than approximately 6,000 rpm. These disturbances are believed to be associated with predicted modes of vibration for the flywheel-spin-turbine system. No modes of vibration were sensed for the predicted possible whirl and torsional resonances in the speed range between 6,000 rpm and 22,000 rpm. A squeeze film damper assembly successfully stabilized the flywheel-spin-turbine system when the damper functioned properly; however, low frequency retrograde instabilities were induced into the system by the damper assembly when it was not operated within prescribed parameters.

#### N80-13642# Sandia Labs., Albuquerque, N. Mex. SOLAR THERMAL TEST FACILITY HELIOSTAT DEVELOP-MENT

D. E. Arvizu Jun. 1979 57 p refs Presented at Intern. Symp. on Concentrating Solar Collector Technol., Albuquerque, N. Mex., 14 Jun. 1978

NTIS

(Contract EY-76-C-04-0789)

(SAND-78-1177; CONF-7806153-1) Avail: HC A04/MF A01

The STTF heliostat system is described, and performance data are discussed. The STTF, which uses an array of 222 heliostats in a north field configuration, is capable of supplying 5 MWth energy onto a target on the tower.

N80-13643# California Univ., San Diego.

NATIONAL ENERGY POLICY AND STATE COASTAL PROGRAMS: A CRITIQUE OF CURRENT EFFORTS TO BALANCE ENVIRONMENTAL PROTECTION AND ENERGY PRODUCTION ALONG THE COAST

R. Kanouse and J. Sorensen. Apr. 1979 394 p. refs (Contract EY-76-S-03-0034)

(SAN-0034/263-1) Avail: NTIS HC A17/MF A01

Modifications to the Coastal Zone Management Act (CZMA) are proposed. The first four modifications clarify key provisions in the current Act. The latter four modifications focus upon attributes of the energy facility siting regulatory process that are either ignored or inadequately addressed in the current CZMA. These four proposed modifications are designed to minimize the impediments to an effective and efficient siting process that are caused by the inherent complexities of national energy policy and environmental protection programs. Two legislative options for amending the CZMA, both of which incorporate the eight suggested modifications, are proposed.

N80-13644# Boeing Engineering and Construction, Seattle, Wash

LINEAR CONCENTRATION SOLAR COLLECTOR IN AN AIR SUPPORTED ENCLOSURE. PRELIMINARY DESIGN STUDY Final Report

J. H. Laasko and D. K. Zimmerman Mar. 1979 96 p refs (Contract EY-76-C-04-0789)

(SAND-78-7022) Avail: NTIS HC A05/MF A01

A preliminary design for a low cost linear parabolic concentrating solar collector in a pneumatically stabilized cylindrical plastic film enclosure is described. The collector configuration structural analyses, thermal performance modeling, mass-produced component costs, field assembly methods and maintenance requirements are discussed. Daily efficiencies in excess of 45% are predicted with estimated installed field collector costs of \$90/sq m (\$8.34/sq ft). Results of cost and performance studies indicate that the collector has potential for low cost and offers attractive cost/performance figures-of-merit with further development.

## N80-13645# Sandia Labs., Albuquerque, N. Mex. PERFORMANCE TESTING OF THE GENERAL ELECTRIC ENGINEERING PROTOTYPE COLLECTOR

V. E. Dudley and V. E. Workhoven, Jul. 1979 35 p. refs (Contract EY-76-C-04-0789)

(SAND-79-0514) Avail: NTIS HC A03/MF A01

The performance of a 5 meter parabolic dish solar concentrator was characterized. Thermal efficiency and thermal losses were investigated at temperatures from 100 C to 300 C. Significant improvements were made in the performance of the collector during the test cycle. Final efficiency performance ranged from about 60% at 100 C to about 53% at 300 C. Thermal losses varied significantly with changes in wind velocity.

N80-13646# United Technologies Corp., South Windsor, Conn. Power Systems Div.

### INTEGRAL CELL SCALE-UP AND PERFORMANCE VERIFICATION Final Report

L. M. Handley, W. E. Houghby, W. H. Johnson, T. G. Schiller, and H. Y. Stryker Jun. 1979 57 p ref Sponsored by Elec. Power Res. Inst.

(EPRI-EM-1134) .Avail: NTIS HC A04/MF A01

The integral cell configuration of the 4.8-MW demonstrator cell size was scaled and the full size packages were tested in short cell stacks to verify the acid management capability and document performance. Low cost cell stack construction techniques were refined, and materials were modified to produce improved cell stack components. A 1530-hour test of a 20-cell stack demonstrated that the performance of the integral cell configuration was equivalent to that of the 4.8-MW demonstrator configuration, and that increased acid inventories could be accommodated in the electrodes without severe performance penalties. Improvements in acid cell stack technology that would be sufficient to allow a 20 percent reduction in total active cell area relative to the demonstrator were investigated. Improvements to previously developed catalysts, catalyst layers, and application techniques were investigated, and subscale single cell endurance

tests were conducted. A cell stack conceptual design incorporating the integral cell concept was initiated. DOE

N80-13647# California Univ., Livermore. Lawrence Livermore Lab.

### TIDAL PRESSURE RESPONSE AS A RESERVOIR ENGINEERING TOOL

J. M. Hanson Jul. 1979 5 p refs Presented at Geothermal Resources Council Ann. Meeting, Reno, Nev., 24 Sep. 1979 (Contract W-7405-eng-48)

(UCRL-83012; CONF-790906-10) Avail: NTIS HC A02/MF A01

Fluid pressure oscillations resulting from tidal strain reflect hydrologic and elastic properties of a reservoir. Precise measurement and interpretation of these pressure fluctuations has the potential of being a useful quantitative reservoir engineering tool. A procedure was developed that quantifies the spectral resolution in terms of an absolute confidence level in both amplitude and phase of the spectral estimate. Analysis of one week of data from a well in the Salton Sea is presented.

N80-13648# California Univ., Berkeley. Lawrence Berkeley Lab. Energy and Environment Div.

### CHARACTERIZATION OF SOLID-WASTE CONVERSION AND COGENERATION SYSTEMS

Ronald L. Ritschard, Kendall F. Haven, Mark Henriquez, Josh Kay, and William Walzer 15 Aug. 1978 226 p refs. (Contract W-7405-eng-48)

(LBL-7883) Avail: NTIS HC A11/MF A01

Three basic technologies for recovering energy from municipal solid wastes (MSW) are considered: (1) direct combustion using a waterwall incinerator in which heat from burning refuse is converted to steam by circulating water in steel tubes jacketing the interior of the incinerator; (2) manufacture of a relatively uniform shredded, pulverized, or pelleted refuse derived fuel for supplemental firing in a utility boiler; and (3) pyrolysis or destructive distillation of MSW to extract a low Btu fuel gas. End use applications of cogeneration systems include fluidized bed systems for use in the pulp and paper industry; diesel systems using the digested sewage gas of a sewage treatment plant for electricity generation, heating and pumping; and an enhanced oil recovery system. Comparisons are made of Landguard pyrolysis, Garrett flash pyrolysis, Union Carbide Purox process, direct combustion, refuse derived fuels, fluidized bed cogeneration, diesel cogeneration, and enhanced oil recovery.

# N80-13649# Midwest Research Inst., Golden, Colo. REVIEW OF THE ENVIRONMENT EFFECTS AND BENEFITS OF SELECTED SOLAR ENERGY TECHNOLOGIES Kathryn A. Lawrence May 1979 18 p refs

(Contract EG-77-C-01-4042)

(SERI/TP-53-114R) Avail: NTIS HC A02/MF A01

The environmental effects of photovoltaic cells, wind energy conversion (WEC), and the solar thermal central receiver are reviewed and summarized. The solar energy technologies are assumed to be deployed as centralized energy production facilities. The phase of resource extraction and component production is the most environmentally hazardous. Impacts of plant construction will be somewhat site specific but should approximate impacts associated with any large construction activity. The operation phase is relatively environmentally benign. The WEC operation produces low level noise pollution and presents minimal hazards to flying species. Solar thermal facilities equipped with wet cooling towers may affect local air quality via cooling tower drift. In addition, large installations of each option may alter local microclimate. Decommission of WEC, solar thermal, and photovoltaic facilities should prevent no environmental hazards, although disposal of CdS or GaAs cells will require care. DOE

N80-13650# Brookhaven National Lab., Upton, N. Y. PROCESS OPTIMIZATION OF INDUSTRIAL ENERGY USE D. A. Pilati and F. T. Sparrow (Purdue Univ.) 1979 7 p refs Presented at the Intern. Conf. on Energy Use Management, ICEUM-2, Los Angeles, 22-26 Oct. 1979 Submitted for publication

(Contract EY-76-C-02-0016)

(BNL-26482) CONF-791009-3)

HC A02/MF A01

NTIS Avail:

NTIS

A set of industry-specific process optimization models are developed. These models are to be used for energy use projections, energy policy analyses, and process technology assessments. Applications of the models currently under development show that: (1) system wide energy impacts may be very different from engineering estimates; (2) selected conservation strategies may have the perverse effect of increasing energy use; and (3) a proper combination of energy taxes and investment tax credits is more socially desirable than either policy alone.

#### N80-13651# Brookhaven National Lab., Upton, N. Y. CASE STUDY OF THE BROWNELL LOW ENERGY REQUIRE-MENT HOUSE

R. F. Jones, R. F. Krajewski, and G. Dennehy May 1979 78 p

(Contract EY-76-C-02-0016)

(BNL-50968) Avail: NTIS HC A05/MF A01

The design and thermal performance of an innovative house built in 1977 in the Adirondacks area of New York State was evaluated. The house has a very tight and well-insulated envelope, with the rigid insulation board applied to the outside of the frame. Passive solar gain through south-facing glass, along with internal free sources of heat, are shown to provide a substantial part of the building's heating requirements. Effective integral thermal storage, provided by the exposed interior structure, serves to keep interior temperature excursions within acceptable limits. Additional remote storage is provided in the form of a large thermal storage sand bed, with air ducts, located below the basement floor. Calculations and measured performance data show that the house's space heating needs are only about 40 percent of those of a similar size house built to minimum property standards, and less than 25 percent of those of a typical inventory house in the Northeast United States.

#### N80-13653# Los Alamos Scientific Lab., N. Mex. ENERGY PLANNING WITH SOLAR AND CONSERVATIONS: INDIVIDUAL VALUES AND COMMUNITY CHOICE

S. A. Noll, F. Roach, and L. Palmiter 1979 6 p refs Presented at Intern. Solar Energy Soc. Meeting, Atlanta, 28 May 1979 (Contract W-7405-eng-36)

(LA-UR-79-1599; CONF-790541-24) Avail:

HC A02/MF A01

Conflict among the priorities of individuals, private sector businesses, and government entities involving the transition to a renewable energy-resource base is considered. These conflicts are intensified by the overwhelming number of externalities created by the actions of each of these decision making groups. An illustrative example of the benefits to be derived from community energy planning is given. It is shown that community energy programs have the potential to stimulate household and community income, create job opportunities, develop a more resilient energy economy, and help mitigate environmental deterioration.

#### N80-13654# Brookhaven National Lab., Upton, N. Y. DESIGN, CONSTRUCTION, AND OPERATION OF THE SOLAR ASSISTED HEAT PUMP GROUND COUPLED STORAGE EXPERIMENTS AT BROOKHAVEN NATIONAL LABORATORY

P. D. Metz 1979 8 p refs Presented at the 4th Ann. Heat Pump Technol. Conf., Stillwater, Okla., 9 Apr. 1979 (Contract EY-76-C-02-0016)

(BNL-25908; CONF-790446-3) Avail: NTIS

HC A05/MF A01

The design, construction, and initial operation of the first generation experiments are discussed. Four of these experiments involve buried tanks, and four use buried serpentine coils of 1 1/2 inch diameter flexible polyethylene pipe in various configurations and lengths. Heat is added to or removed from each experiment by hot water heaters or heat pumps. The amount of heat added or removed is determined by a computer program which simulates all parts of the solar system except for the ground coupling device. Experiments conducted to

determine ground thermal conductivity, heat capacity, diffusivity, and moisture content are also discussed. The overall research program plan and some early results are presented.

N80-13655# Rosenblatt (M.) and Son, Inc., New York. OTEC PLATFORM CONFIGURATION AND INTEGRATION. **VOLUME 1: SYSTEMS ENGINEERING AND INTEGRATION** Final Report

7 Jul. 1978 228 p refs (Contract EG-77-C-01-4065)

(TID-29418) Avail: NTIS HC A11/MF A01

An evaluation methodology was developed for the purpose of analyzing the ocean system requirements against the site criteria and in arriving at the conclusions as far as hull, seawater system, positioning system, and other ocean systems characteristics. Feasibility studies and cold water pipe/hull stress analyses indicated that the best platform hull shape would be one that would have a submerged main body and the cold water pipe would be attached to it in a flexible joint type configuration, possibly with flexible joints along the length as well. The best positioning system would be a static mooring system, possibly 3-leg, using hollow cylindrical links for lines.

#### N80-13656# Ocean Data Systems, Inc., Monterey, Calif. OTEC THERMAL RESPONSE REPORT FOR PACIFIC PLANT SHIP, 5 TO 10 DEG N 90 TO 95 DEG W

W. A. Wolff May 1979 44 p refs (Contract ET-78-C-01-2898)

(HCP/T2898-01/3) Avail: NTIS HC A03/MF A01

The temperature difference resource for the plant ship region between 5 to 10 North latitude and 90 to 95 West longitude is evaluated for potential OTEC use. Surface temperatures are consistently high with the monthly mean temperatures ranging from 26.5 C to 28.5 C. An annual mean delta T greater than 20 C is available at 550 meters. Bottom depths are much greater than 1500 meters for the entire plant ship region. The mixed layer depth is very shallow throughout the year, and may be nonexistent at times indicating a warm water intake near the surface. High winds and storms are not a major problem for this site, due in part to the proximity to the equator. Mean surface currents are somewhat larger in magnitude than other Pacific sites. The site chosen is located near the approximate. limits of the North Equatorial Current and the Pacific Equatorial Countercurrent. Current shear may cause problems.

N80-13658# Department of Energy, Washington, D. C. Energy Storage Systems Div.

#### MULTI-YEAR PLAN FOR THERMAL AND MECHANICAL **ENERGY STORAGE PROGRAM**

Jun. 1979 79 p refs

(DOE/ET-0109) Avail: NTIS HC A05/MF A01

Reliable, efficient, and inexpensive energy storage technologies to support other DOE end-use divisions in their substitution and energy-savings missions are discussed. In addition to thermal and mechanical technology development, the Technical and Economic Analysis subprogram which supports both the Thermal and Mechanical Storage Program and the Electrochemical (Battery) Storage Program is described. The DOE end-use organizations that benefit from development of thermal and mechanical storage technologies are: Central Solar Technology, Distributed Solar Technology, Solar Applications, Transportation Programs, Buildings and Community Systems, Industrial Energy Conservation, and Resource Applications.

N80-13660# Aerojet Energy Conservation Co., Sacramento, Calif. MULTI-USE GEOTHERMAL ENERGY SYSTEM WITH AUGMENTATION FOR ENHANCED UTILIZATION. NON-ELECTRIC APPLICATION OF GEOTHERMAL ENERGY IN SUSANVILLE, CALIFORNIA Final Report

G. K. Olsonn, D. L. Benner-Drury, and G. R. Cunnington Feb. 1979 200 p refs

(Contract ET-78-C-03-1740)

(DOE/ET-248447/1) Avail: NTIS HC A09/MF A01

Multi-use, augmented geothermal space/water heating and cooling systems were studied. The overall benefits in both the public and private sectors, of using low temperature (150 F to 240 F) geothermal resources are explored. Options considered, alone and in combination, include heat pumps, fossil-fuel peaking, user load balancing, and cascading from the geothermal system serving the public buildings into a private Park of Commerce development. A range of well temperatures, depths, flow rates, and drilling costs are considered to provide system cost sensitivites. A planned development is emphasized for ease of financing and expansion. A preliminary design of Phase A of a Susanville Public Building Energy System and a conceptual design of an integrated Park of Commerce, Phase 1, are included. This system was designed for a 150 F resource and can be used as a model for other communities with similar resource tempera-

N80-13661# Research Triangle Inst., Research Triangle Park,

#### NOVEL CONCENTRATOR PHOTOVOLTAIC CONVERTER SYSTEM DEVELOPMENT Final Report

S. M. Bedair, M. F. Lamorte, and J. R. Hauser Jul. 1979 207 p refs

(Contract EY-76-C-04-0789)

(SAND-79-7040) Avail: NTIS HC A10/MF A01

The development, synthesis, and evaluation of a cascade solar cell having an AM 1 conversion efficiency of 30 percent or greater and capable of operating at both high illumination levels and elevated temperatures is discussed. A comparison of the cascade solar cells with conventional single junction solar cells is presented. A number of ternary and quaternary material systems which have potential application to the cascade solar cell are discussed. Demonstration cells built in the GaAs/AlGaAs material systems are examined. A.W.H.

N80-13662# Department of Energy, Washington, D. C. Office of Solar, Geothermal, Electric and Storage Systems.

SOLAR THERMAL POWER SYSTEMS Annual Technical Progress Report, 1978

Jun. 1979 144 p refs

(DOE/ET-0078/T1) Avail: NTIS HC A07/MF A01

The development of solar thermal power system technology for midtemperature, solar total energy, small community, irrigation, and large power systems is discussed. Subsystem and component development is also described.

N80-13663# Bureau of Reclamation, Boulder City, Nev. SOLAR THERMAL ELECTRIC PLANTS IN HYDROELECTRIC GRID Technical Progress Report, 9 Feb. - 9 May 1979 17 Jul. 1979 26 p refs (Contract DE-AI03-79SF-10505)

(DOE/SF/10505-1) Avail: NTIS HC A03/MF A01

Factors to be used in candidate site selection were determined, factor maps were compiled, and the development of a hydrologic model of the river/reservoir system was initiated. In addition, initial performance and cost data were reviewed for three solar power systems.

#### N80-13665# Lincoln Lab., Mass. Inst. of Tech., Lexington. EVALUATION OF COMBINED PHOTOVOLTAIC/THERMAL COLLECTORS

1979 6 p refs Presented at Intern. Solar S. D. Hendrie Energy Soc. Meeting, Atlanta, 28 May 1979

(Contract EG-77-S-02-4577)

NTIS (COO-4577-8; CONF-790541-54) Avail: HC A02/MF A01

The thermal and electric performance of an air and a liquid type combined photovoltaic/thermal solar collector was evaluated. yielding close correlation with theoretical results. Maximum thermal efficiencies of 42.5% and 40% for the liquid and air collectors without electric power production decreased to 40.4% and 32.9% when electrical power were produced. Maximum electrical efficiencies of 6.8% were measured.

N80-13666# Oak Ridge National Lab., Tenn. EXPERIMENTAL AND ANALYTICAL OTEC STUDIES AT ORNL

J. W. Michel 1979 8 p refs Presented at 6th OTEC Conf., Washington, D. C., 19 Jun. 1979 (Contract W-7405-eng-26)

(CONF-790631-1) Avail: NTIS HC A02/MF A01

Ammonia condensation tests were performed on several vertical fluted tubes and on tubes inclined at 30 deg from the vertical position. The high condensation coefficients reported for fluted tubes were verified. They seemed to be insensitive to tube length over the range tested. Also, tilting the tubes significantly improved the performance of smooth tubes and caused a slight decrease in the performance of fluted tubes. The cost effectiveness of various types of heat transfer enhancement were evaluated and heat exchanger joinability was surveyed.

N80-13667# Franklin Pierce Law Center, Concord, N. H. Energy Law Inst

#### FUNDAMENTAL ECONOMIC ISSUES IN THE DEVELOP-MENT OF SMALL-SCALE HYDRO

Peter W. Brown and M. Ringo 15 Mar. 1979 28 p (Contract RA-23-216.00.0) (DOE/RA-23-216.00.0-02) Avail: NTIS HC A03/MF A01

The analysis presented is based on literature reviews, case studies, on-site visits, and particularly information from the Franklin Pierce - Thayer project. Broadly stated, economic analysis to

data suggests that legal and regulatory constraints are the major obstacles for the slow development of SSH development. The economic picture of a hydro site as if it were a typical small business is described. The discussion is broken down into four parts, namely: costs, supply, demand and profitability.

N80-13668# Colorado State Univ., Fort Collins. Solar Energy Applications Lab.

#### SOLAR COOLING PERFORMANCE IN CSU SOLAR HOUSE 3

D. S. Ward, J. C. Ward, and H. S. Oberoi Jan. 1979 20 p refs

(Contract EY-76-S-02-2858)

(COO-2858-23) Avail: NTIS HC A02/MF A01

Preliminary performance and pertinent operating experience with a liquid-heating flat-plate solar collector integrated with a residential solar heating and cooling system is presented. Data for the months of July and August (1978) are included, along with an analysis of the operation of the solar cooling system which utilizes the Yazaki 2-ton lithium bromide absorption chiller and a cool storage subsystem. Results of the analysis provide clear indications of the critical importance of temperature differentials between the collector outlet and the absorption chiller generator inlet, the effects of alternative control strategies, the marginal feasibility of cool storage, the devastating effect on system performance of the heat losses from the thermal storage unit, and the importance of parasitic power requirements on the DOF ultimate feasibility of solar absorption cooling.

N80-13669# Midwest Research Inst., Golden, Colo. Solar Energy Research Inst.

#### TECHNOLOGY DEVELOPMENT NEEDS FOR HIGH TEMPER-ATURE PROCESS HEAT

Robert J. Copeland Aug. 1978 62 p refs (Contract EG-77-C-01-4042)

(SERI/TR-35-047) Avail: NTIS HC A04/MF A01

The potential utilization of high temperature solar thermal process heat was investigated. The petroleum industry was reviewed in some detail, and one candidate technology using hydrogen for energy transport was also investigated. Costs, land availability, and energy transfer were the key problem areas. With appropriate development all problems appeared solvable. More detailed evaluations of each large user industry were DOF recommended.

N80-13670# RCA Labs., Princeton, N. J. MATERIALS FOR SOLAR THERMAL CONVERSION Report, 1 Sep. 1977 - 31 Aug. 1978
J. I. Gittleman and E. K. Sichel Sep. 1978 22 p refs

(Contract EG-77-C-02-4557)

(COO-4557-1; PRRL-78-CR-42) Avail: NTIS HC A02/MF A01

Composite semiconductors were produced by cosputtering Ge and Si with CaF2 and their optical constants were measured. The normal specular reflectance of films sputtered on mirrored surfaces was measured. These data were used to compute the solar absorptance alpha/sub s/ and thermal emittance epsilon/sub th/. Thus at T = 500 C a conversion efficiency of 50 percent is possible at solar concentration ratios C of 7 to 8, and about 70 percent is possible for C approximately 40. It was concluded that a parabolic trough, a distributed receiver with a concentration ratio of 50 or less could be more economical for some applications than a central receiver for which C > 500, but the possiblity of using these and other highly selective absorbers for the economical conversion of solar energy should be considered.

N80-13671# Virginia Univ., Charlottesville.

#### EXPERIMENTAL AND THEORETICAL EVALUATION OF A NOVEL CONCENTRATING SOLAR ENERGY COLLECTION SYSTEM

Alexander B. Maish and J. Taylor Beard 1979 5 p refs Presented at the 1979 Intern. Solar Energy Congr., Atlanta, 28-30 May 1979

(Contract EY-76-C-04-0789)

CONF-790541-3) (SAND-79-1053C;

HC A02/MF A01

NTIS Avail:

A new concentrating solar energy system was evaluated theoretically and experimentally. The modular, two-axis tracking collector combined an aluminized mylar reflector with a flat plate absorber. Radiation collected from the 7 sq m frontal area was concentrated by a factor of five, making the collector suitable for intermediate temperature applications. The thermal performance of the collector was determined theoretically on a digital computer using a nodal approach to model the heat transfer processes. Collector sensitivies to environmental parameters were calculated. An experimental testing program conducted according to testing standards verified the predicted results. DOE

N80-13672# Colorado State Univ., Fort Collins. Solar Energy Applications Lab.,

#### TRANS-SEASONAL STORAGE OF SOLAR ENERGY: INNOVATIVE RESEARCH PROGRAM SUBTASK Final Report, Dec. 1977 - Sep. 1978

W. D. Kemper and W. R. Walker Oct. 1978 27 p refs (Contract EG-77-S-02-4546)

(COO-4546-3) Avail: NTIS HC A03/MF A01

The efficiencies and economics of long term storage of solar energy as low temperature heat in shallow underground reservoirs constructed using in situ soil materials are evaluated. Simulation models for predicting the movement of water and heat in response to temperature and capillary pressure gradients in partially saturated porous media are developed and conditions which might predict the rate and extent to which dry insulating blankets of soil form around hot buried reservoirs are simulated. The effect of confining barriers which restrict vapor and liquid flow of water is also simulated. The thermal conductivities of low cost and in situ materials which may be used in the construction of underground heat reservoirs are evaluated and methods of optimizing the thermal conductivities of these materials are developed.

#### N80-13673# Los Alamos Scientific Lab., N. Mex. HOT DRY ROCK GEOTHERMAL ENERGY DEVELOPMENT PROGRAM Annual Report, 1978

M. C. Brown, comp., R. B. Duffield, comp., C. L. B. Siciliano, comp., and M. C. Smith, comp. Apr. 1979 132 p refs (Contract W-7405-eng-36)

(LA-7807-HDR) Avail: NTIS HC A07/MF A01

Run segments were completed in the prototype reservoir of the energy-extraction system at Fenton Hill, New Mexico. The tests yielded significant data on system flow parameters, water loss rates, geofluid chemistry, downhole flow impedance, operational constraints, mathematical modeling, technology and instrument capabilities, and environmental effects of operation. The technical results indicated that energy (thermal or electrical) from hot dry rock may be a feasible alternate energy source. Also, plans were prepared for a system with a commercial size reservoir that can demonstrate the production lifetime of such a DOE

N80-13674# Midwest Research Inst., Golden, Colo. Solar Energy Research Inst.

WIND ENERGY INNOVATIVE SYSTEMS Technical Status Report, Jul. 1978

Irwin E. Vas Aug. 1978 58 p refs (Contract EG-77-C-01-4042)

(SERI/PR-13-054) Avail: NTIS HC A04/MF A01

Economic and technical feasibility of innovative concepts and systems utilizing wind energy were investigated. Technical management of the 'wind energy innovative systems' program is discussed. The efforts of the current contracts are included within four major task areas: (1) theoretical thermodynamic and aerodynamic studies; (2) model design, fabrication, and test; (3) performance projections; and (4) economic evaluations.

R.E.S.

### N80-13675# Power Technologies, Inc., Schenectady, N. Y. INDUCTION AND SYNCHRONOUS MACHINES FOR **VERTICAL AXIS WIND TURBINES Final Report**

E. N. Hinrichsen Jun. 1979 123 p refs

(Contract EY-76-C-04-0789)

(SAND-79-7017) Avail: NTIS HC A06/MF A01

The behavior of synchronous and induction generators driven by vertical axis wind turbines is described. The merits of the two types of machines are assessed. Major advantages of the synchronous generator are reactive power control and general acceptance by utility companies. The major advantage of the induction generator is excellent damping of torque pulsations. There is no significant difference in starting ability, efficiency, or

#### N80-13676# Oak Ridge National Lab., Tenn. LAND-BASED APPLICATION OF AN OTEC OPEN-CYCLE POWER SYSTEM

F. C. Chen 1979 6 p refs Presented at 6th OTEC Conf., Washington, D.C., 19 Jun. 1979 (Contract W-7405-eng-26)

(CONF-790631-3) Avail: NTIS HC A02/MF A01

Application of OTEC power component technology to many land-based low temperature heat resources including rejected heat from thermal plants and Federal nuclear facilities, as well as freshwater thermoclines is considered. For utilizing rejected heat from large thermal power plants where OTEC range cold water is economically available, it is more cost-effective to apply OTEC open-cycle steam turbine technology for additional turbine stages for the conventional thermal power plant cycle rather than to add a separate bottoming cycle system. For utilizing rejected heat from Federal nuclear facilities, the open-cycle power system has its advantage because it does not need isolation heat exchangers to avoid cross contamination between the working fluid and the hot water supply. A simple thermal performance model and the thermal analysis of a conceptual rejected heat open-cycle power system corresponding to binary cycle system studies are presented. DOE

#### N80-13677# Los Alamos Scientific Lab., N. Mex. CONCEPTUAL DESIGNS FOR TWO REJECT HEAT SYS-TEMS FOR A BRAYTON CLOSED-CYCLE CONVERTER

G. A. Bennett May 1979 32 p refs

(Contract W-7405-eng-36)

(LA-7821-MS) Avail: NTIS HC A03/MF A01

Designs for two candidate reject heat systems (RHS) developed for a Brayton closed-cycle space nuclear power system are described. The most important constraints imposed on the design are the size and mass limits and the rigid survival standard of 99% probability that the RHS be functional at full power at the end of a seven-year mission. The secondary loop design includes a pumped-NaK radiator and a heat-pipe heat exchanger. The radiator is of conventional design with armored flow tube passages and fins arranged in rectangular panels placed at right angles to each other. The heat exchanger is a cylindrical pressure vessel with four radiator loops and two converter loops. The direct-pumped gas RHS is designed with many thin-walled, finned heat pipes placed side by side to form rectangular radiator panels that are arranged at right angles to each other. The gas heat exchanger is an armored manifold composed of multiple parallel

flow tubes placed at the evaporator end of the radiator heat JMS pipes.

N80-13678# University of Southern California, Los Angeles. Dept. of Materials Science.

LOW COST SOLAR CELLS BASED ON AMORPHOUS SILICON ELECTRODEPOSITED FROM ORGANIC SOL-VENTS Technical Quarterly Progress Report, 1 Dec. 1978 -28 Feb. 1979

F. A. Kroeger 1979 5 p refs (Contract EY-76-S-03-0113)

(SAN-0113-T3; TQPR-2) Avail: NTIS HC A02/MF A01

Electrodeposition studies using three possible silicon sources are reported. Improvements of the apparatus for the cathodic deposition of a-Si with the exclusion of air are discussed. Experiments are described which attempt to characterize the structure of the deposits. These include mass spectroscopy and X-ray diffraction analysis.

N80-13679# Ames Lab., lowa.

FOSSIL ENERGY PROGRAM. 1. MINING RESEARCH AND DEVELOPMENT: COAL PREPARATION AND ANALYSIS Technical Progress Report, 1 Oct. - 31 Dec. 1978

May 1979 112 p

(Contract W-7405-eng-82)

(IS-4655) Avail: NTIS HC A06/MF A01

The objectives and progress for eight areas of the fossil energy program are reported. Research topics presented include the development of fine coal desulfurization and recovery technology, the microstructure of coal, the recovery of minerals from coal fly ash, and alloy evaluation for fossil fuel process A.W.H. plants.

N80-13680# California Univ., Berkeley. Lawrence Berkeley Lab. Energy and Environment Div.

THERMAL PERFORMANCE OF BUILDINGS AND BUILDING ENVELOPE SYSTEMS: AN ANNOTATED BIBLIOGRAPHY William L. Carroll Apr. 1979 41 p Presented at the DOE/ASTM Thermal Insulation Conf., Tampa, Fla., 23-24 Oct. 1978 (Contract W-7405-eng-48)

(LBL-8925) Avail: NTIS HC A03/MF A01

A bibliography of published papers describing models, measurement techniques, apparatus, and data for the thermal performance of whole buildings and building envelope systems is presented. Summary descriptions of the content of each citation are provided. Citations on analytical models are selective and concentrate on methodology that forms the basis of computer programs for whole building energy analysis. Approached to dynamic measurements, both in the laboratory and in the field, for envelope systems and for whole buildings are included. DOE

N80-13681# Department of Energy, Oak Ridge, Tenn. Technical Information Center.

#### COGENERATION OPPORTUNITIES

1978 268 p refs Presented at Cogeneration Opportunities: A Symp. on Prospects for Ind. and Utility Gas, Oil and Coal-Fired Cogeneration, St. Louis, 6-7 Jun. 1978

(CONF-7806118) Avail: NTIS HC A12/MF A01
Thirteen unedited papers from a symposium covering government, industry, and utility cooperation in the use of waste energy for generating electricity and heat are presented. Specific topics discussed include process economics, institutional barriers to cogeneration, industrial cogeneration options, and utility experiences in cogeneration. ĸ

N80-13686# General Electric Co., Santa Barbara, Calif. for Advanced Studies.

#### LARGE-SCALE ANNUAL-CYCLE THERMAL ENERGY STORAGE IN AQUIFERS

C. F. Meyer Apr. 1979 19 p refs Presented at Intern. Assembly on Energy Storage, Dubrovnik, Yugoslavia, 27 May

(Contract W-7405-eng-26)

(CONF-790515-3) Avail: NTIS HC A02/MF A01

Thermal energy storage in aquifers is examined. Potential benefits of aquifer storage in a large district heating/cogeneration system proposed for an urban area are discussed.

#### N80-13687# Lincoln Lab., Mass. Inst. of Tech., Lexington. COST ANALYSIS OF PACKED BEDS FOR THERMAL ENERGY STORAGE

N. I. Hamilton 3 Dec. 1978 36 p refs (Contract EX-76-A-01-2295)

(CAES-11) Avail: NTIS HC A03/MF A01

A cost analysis of packed beds for thermal-energy storage (TES) in an adiabatic compressed-air-energy storage system is given. Capital costs based on the conceptual design of a TES unit are estimated and their sensitivity to system parameter variation is studied. Two TES conceptual designs were considered for: an excavated cavity, and an abandoned mine. A cost comparison is made between surface-sited and underground TES. A cost model was constructed to study the effect of pebble size, insulation thickness, temperature, storage pressure, storage capacity, and other TES components on the TES capital cost.

N80-13688# Battelle Columbus Labs., Ohio. PHOTOVOLTAIC CONCENTRATOR APPLICATION EXPERI-MENT. PHASE 1: A 150 kW PHOTOVOLTAIC CONCEN-TRATOR POWER SYSTEM FOR LOAD-CENTER APPLICA-TIONS WITH FEEDBACK INTO THE UTILITY GRID Final

Report, 1 Jun. 1978 - 31 Mar. 1979 G. T. Noel, G. Alexander, L. H. Stember, G. H. Stickford, H. E. Smail, J. H. Broehl, and D. C. Carmichael Apr. 1979 123 p refs

(Contract ET-78-C-04-4267)

(DOE/CS-34267/1) Avail: NTIS HC A06/MF A01

A 150 kW peak concentrator-type photovoltaic power system was designed for multiple building load application. The system will operate in parallel with the utility grid (which provides backup power) to supply either or both of two service commercial buildings and will feed surplus power into the utility grid. System performance analysis indicates that the system will supply approximately 147,000 kWh/year to the primary load and an additional 55,000 kWh/year to the utility grid, in the single-load operational mode. The system design and the daily and seasonal match of system output with the load are described in detail. Plans are also discussed for installation and for operational evaluation of performance, economics, and institutional issues DOE

N80-13689# Argonne National Lab., III. STATUS OF DEVELOPMENT, ENERGY AND ECONOMICS ASPECTS OF ALTERNATIVE TECHNOLOGIES

P. S. Farber, C. D. Livengood, K. E. Wilzbach, W. L. Buck, and H. Huang 1979 49 p refs Presented at 5th Flue Gas Desulfurization Symp., Las Vegas, Nev., 5 Mar. 1979 (Contract W-31-109-eng-38) (CONF-790371-1) Avail: NTIS HC A03/MF A01

Several energy technologies under development throughout

the world which either totally negate the need for flue gas desulfurization or require less than full flue gas scrubbing are examined. These processes remove sulfur either prior to coal combustion during combustion, or between two combustion stages. The status of development and/or demonstration of these technologies with respect to the possible application to the generation of electricity is reviewed. The overall coal to electrical energy efficiency and economics (capital costs and total annualized costs, mills/kWh) are explored, and compared for the various alternatives.

N80-13690# Los Alamos Scientific Lab., N. Mex. CRITICAL REVIEW AND ASSESSMENT OF ENVIRONMEN-TAL AND SAFETY PROBLEMS IN HYDROGEN ENERGY SYSTEMS Progress Report, 1 Oct. 1977 - 30 Sep. 1979 F. J. Edeskuty, comp. and N. N. Sheheen, comp. May 1979 249 p refs

(Contract W-7405-eng-36)

(LA-7820-PR) Avail: NTIS HC A11/MF A01

The safety aspects and environmental problems of using hydrogen in energy systems are examined. Topics include hydrogen embrittlement, hydrogen dispersion after a gas leak of liquid spill, hydrogen combustion, an assessment of regulation's and standards for hydrogen development, and hydrogen transmission through pipelines.

N80-13691# Department of Energy, Washington, D. C. Office of Solar, Geothermal, Electric and Storage Systems.

PHOTOVOLTAIC SYSTEMS. PROGRAM SUMMARY

Dec. 1978 366 p refs (DOE/ET-0019/2) Avail: NTIS HC A16/MF A01

The photovoltaic systems program projects during fiscal year 1978 are described. The project sheets list the contractor, principal investigator, contract number and funding, and summarize the programs and status. The program is divided into various elements: program assessment and integration, research and advanced development, technology development, system definition and development, system application experiments, and standards and performance criteria.

### N80-13692# Lincoln Lab., Mass. Inst. of Tech., Lexington. TEST PLAN FOR THE MEAD 25-kW PHOTOVOLTAIC FLEXIBLE TEST FACILITY, 1979

R. F. Hopkinson 15 Mar. 1979 21 p ref

(Contract EY-76-C-02-4094)

(COO-4094-53) Avail: NTIS HC A03/MF A01

The operations of the Mead 25-kW Photovoltaic System are reported along with descriptions on how the flexible test bed is expected to be used in experiments with a variety of PV applications, including irrigation, crop drying and fertilizer manufacturing. The planned operations for the Mead site during 1979 are given, and a schedule is attached.

#### N80-13693# Sandia Labs., Albuquerque, N. Mex. SANDIA LABORATORIES OPERATIONAL EXPERIENCE WITH SMALL HEAT ENGINES IN SOLAR THERMAL POWER **SYSTEMS**

Joseph P. Abbin, Jr. 1979 5 p refs Presented at 14th Intersoc. Energy Conversion Conf., Boston, 5 Aug. 1979 (Contracts EY-76-C-04-0789; DE-AC04-76DP-00789) (SAND-78-2163C: CONF-790803-23) NTIS HC A02/MF A01

Hardware and operating experience obtained from the construction and testing of two small Rankine-cycle solar thermal power plants are described. The first plant is part of a prototype solar total energy system with an electrical generating capacity of 32 kW, and the second plant is part of a prototype solar irrigation unit with a shaft power output of 19 kW or an electrical output of 15 kW.

### N80-13694# Lincoln Lab., Mass. Inst. of Tech., Lexington. NOVEL CERAMIC RECEIVER FOR SOLAR BRAYTON

Philip O. Jarvinen 1979 7 p Presented at ASME Gas Turbine Closed-Cycle Session, San Diego, Calif., 12-15 Mar. 1979 (Contract ET-78-S-02-4878)

(COO-4878-3; CONF-790305-7)

HC A02/MF A01

Receivers for solar thermal heated air Brayton power systems are discussed. The ceramic domed cavity receiver concept is examined. The development of a high temperature seal for the solar heating air cavity receiver is reported. Mechanical dome sealing methods for this purpose are reviewed and investigations to establish the technological foundation of the seal concepts by demonstrating that ceramic domes can be designed to support the combined pressure, thermal stress, and temperature loads of a heated air receiver are presented. A.W.H.

### N80-13695# Argonne National Lab., III. MATERIALS TESTING FOR CENTRAL RECEIVER SOLAR-THERMAL POWER SYSTEMS

S. Majumdar 1978 13 p

(Contract W-31-109-eng-38)

(TID-29443) Avail: NTIS HC A02/MF A01

Biaxial creep-fatigue tests (constant tensile hoop stress and cyclic axial strain with hold times in compression) were performed on type 316H stainless steel superheater tubing. A comprehensive survey of information on sodium effects on candidate materials for solar-thermal electric piping and steam generators was conducted. Mechanical property data were generated in support of the ASME code development.

#### N80-13696# Argonne National Lab., III. OTEC POWER SYSTEMS

1979 14 p refs Presented at Offshore Technol. Conf., Houston, Tex., 30 Apr. 1979

(Contract W-31-109-eng-38)

(CONF-790444-2) Avail: NTIS HC A02/MF A01

The technical features of design studies of power systems using shell and tube heat exchangers and shell-less heat exchangers are presented. Heat exchanger design, biofouling control, rotating equipment, auxiliaries, plant layout, and system cost are among the areas discussed. The role of the power systems development program in the larger OTEC program is also discussed.

#### N80-13697# Solarex Corp., Rockville, Md. SILICON CONCENTRATOR SOLAR CELL MANUFACTUR-ING DEVELOPMENT

C. Wrigley, G. Storti, and J. Wohlgemuth Nov. 1978 69 p. refs

(Contract EY-76-C-04-0789)

(SAND-79-7021) Avail: NTIS HC A04/MF A01

The program to design and develop the manufacturing technology for silicon solar cells suitable for low-cost photovoltaic concentrator systems is summarized. Detailed discussions are presented for the following tasks: concentrator design, manufacturing process development, solar cell measurement and evaluation, results experienced in cell manufacturing, and production cost estimates. Conclusions and recommendations are given. In particular, it is found that (1) large area concentrator cells with 15% efficiency at 50 suns are readily manufacturable; (2) DOE cost goals for 1981 to 1982 can be met today with market volumes at 200 to 1000 sq m per year; and (3) respectable manufacturing yields are achievable with the technology now developed.

#### N80-13698# Foster Wheeler Corp., Livingston, N.J. INTERIM STRUCTURAL DESIGN STANDARD FOR SOLAR ENERGY APPLICATIONS, PHASES 1 AND 2 Final Report I. Berman, A. C. Gangadharan, G. D. Gupta, and T. V. Narayanan Jan. 1979 148 p refs

(Contract DE-AC04-76DP-00789)

(SAND-79-8183) Avail: NTIS HC A07/MF A01

Central receiver solar thermal power systems, relevant ASME codes, reliability considerations, and the criteria used to develop the interim design standard is reviewed. The interim design standard is presented. All criteria or rules chosen or adapted from other codes are fully stated including all design data. A detailed paragraph-by-paragraph explanation of the interim design standard is provided. The test and development program needed to generate design data and to update the interim design standard are identified.

#### N80-13699# Midwest Research Inst., Golden, Colo. REVIEW OF SOLAR ENERGY Annual Report, 1977 Oct. 1978 179 p refs

(Contract EG-77-C-01-4042)

(SERI/TR-54-066) Avail: NTIS HC A09/MF A01

A general review of national solar energy programs is provided. An executive summary and a brief history of the Federal solar energy program are presented. The issues and implications of the National Energy Plan that relate to solar energy development are discussed. The present Federal solar energy program is discussed, including the activities of several Federal agencies outside the Department of Energy. Some of the non-Federal solar energy programs are reviewed, including international programs in which the U.S. has some role, programs of state and local governments, college and university programs, the work of private industry, and individual and small scale activities. A synopsis of the major categories of solar technology is provided. A synopsis of major energy events of 1977; a glossary of technical terms, abbreviations, and acronyms, and a table of conversion factors are included.

N80-13700# McDonnell-Douglas Astronautics Co., Huntington Beach, Calif.

SOLAR CENTRAL RECEIVER PROTOTYPE HELIOSTAT CDRL ITEM B.D., VOLUME 1 Final Report

NTIS

C. R. Easton Aug. 1978 339 p (Contract EG-77-C-03-1605)

(SAN-1605/7-Vol-1; MDC-G7399-Vol-1) Avail: NTIS HC A15/MF A01

The preliminary design of a heliostat for central receiver solar thermal power systems which projects to meet the DOE's goal of \$72/square m R at production volumes as low as 25,000 units per year and reduces to less than \$60/square m R in very high volume production (approximately 1,000.000 units per year) is presented. The manufacturing process, installation and checkout procedures, operation and maintenance procedures, and specification verification and optimization are described.

## N80-13701# Department of Energy, Washington, D. C. ENVIRONMENTAL DEVELOPMENT PLAN: WIND ENERGY CONVERSION

Jul. 1979 34 p refs

(DOE/EDP-0030) Avail: NTIS HC A03/MF A01

Projects or subprograms pertaining to windpower utilization that are likely to result in a demonstration or commercialization within the near term are presented. Projects that are expected to be considered in greater detail in the Environmental Development Plan update are identified.

N80-13702# Ames Lab., lowa.

FOSSIL ENERGY PROGRAM, 1. MINING RESEARCH AND DEVELOPMENT: COAL PREPARATION AND ANALYSIS Technical Progress Report, 1 Jan. - 31 Mar. 1979

Jun. 1979 31 p refs

(Contract W-7405-eng-82)

(IS-4703) Avail: NTIS HC A03/MF A01

The research and development technology in a number of areas in the fossil energy program are examined. Research topics discussed include the microstructure of coal, the development of an online monitoring instrument for pyrite and ash in coal, and coal blending experiments.

## N80-13703# Electric Power Research Inst., Palo Alto, Calif. SOLAR HEATING AND COOLING RESEARCH PROJECTS: A SUMMARY

Neal Lansing May 1979 30 p

(EPRI-ER-1095-SR) Avail: NTIS HC A03/MF A01

The major EPRI solar heating and cooling experiment projects are summarized. In addition to outlining each project and its purpose, the major features of the solar system are described. Also included are relatively detailed descriptions of the performance-monitoring equipment. As additional technical performance results are obtained and new projects added to the program, this document can be updated to include the new information. A basis for verification of analytic work aimed at determining the preferred solar system for any given utility service is provided, i.e., the system that provides the lowest total cost to the consumer and the utility.

N80-13705# Department of Energy, Washington, D. C. Office of Energy Research.

## of Energy Research. THIN FILM PROBLEMS AND RESEARCH IN ENERGY SYSTEMS

Jan. 1979 159 p refs Presented at ERDA/DPR Symp. on Thin Film Res., Pacific Grove, Calif., 1 Nov. 1976 (CONF-761168-Summ) Avail: NTIS HC A08/MF A01

Presentations and recommendations for future efforts in thin film research for energy related applications are presented. Long term thin film coating needs of three programs whose purpose is to develop national energy sources, are described along with the current state of the art of thin film related technologies.

DOE

N80-13706# Argonne National Lab., III.
COMMUNITY HEATING AND COOLING SYSTEMS

J. M. Calm Apr. 1979 9 p refs Presented at 4th Ann. Heat Pump Technol. Conf., Stillwater, Okla., 9 Apr. 1979 (Contract W-31-109-eng-38)

(CONF-790446-6) Avail: NTIS HC A02/MF A01

Centralized, distributed, and cascaded heat pump centered integrated community energy systems (HP-ICES) approaches are discussed and an analysis showing their conservation potential is presented. Benefits of HP-ICES include reduction of adverse environmental effects, reliable production of services in view of increasingly frequent utility curtailments and interruptions, and provision of services at costs more favorable to consumers. DOE

N80-13707# Iowa State Univ. of Science and Technology, Ames

ENERGY CONSERVATION VIA HEAT TRANSFER ENHANCEMENT Quarterly Progress Report, 1 Oct. - 31 Dec. 1978

A. E. Bergles, G. H. Junkhan, and R. L. Webb Mar. 1979 21 p refs

(Contract ET-78-S-02-4649)

(COO-4649-4) Avail: NTIS HC A02/MF A01

Research on energy conservation via heat transfer enhancement is summarized. Computerized retrieval files on technical literature, patents, and manufacturers were developed.

## N80-13708# Oak Ridge National Lab., Tenn. INDUSTRIAL APPLICATIONS OF ADVANCED ENERGY SYSTEMS

J. E. Jones, Jr. 1979 3 p refs Presented at ANS Ann. Meeting, Atlanta, 3 Jun. 1979 (Contract W-7405-eng-26)

(CONF-790602-54) Avail: NTIS HC A02/MF A01

Industrial energy options based on coal and nuclear systems were assessed. Both high-temperature and low-temperature reactors were analyzed for heat process applications. In coal systems, a comparison was made of advanced energy conversion systems based on research and development experience. The important factors restricting the use of coal in industry were assessed. An atmospheric fluidized-bed combustion system for industrial cogeneration is discussed along with a preliminary market assessment for the technology.

## N80-13710# Sandia Labs., Albuquerque, N. Mex. WEIGHT MINIMIZATION OF SANDWICH TYPE SOLAR COLLECTOR PANELS

R. C. Reuter, Jr. 1979 13 p refs Presented at 14th Intersoc. Energy Conversion Conf., Boston, 5 Aug. 1979 (Contract EY-76-C-04-0789)

(SAND-78-2305C; CONF-790803-27) HC A02/MF A01

The existence, utilization and practicality of a minimum weight, adequately stiff design for sandwich panel construction in solar collector application was analytically evaluated.

DOE

# N80-13711# Rosenblatt (M.) and Son, Inc., New York. OTEC PLATFORM CONFIGURATION AND INTEGRATION, EXECUTIVE SUMMARY Final Report

26 Jul. 1978 97 p (Contract EG-76-C-01-4065)

(DOE/ET-4065/1) Avail: NTIS HC A05/MF A01

The commercialization of the ocean thermal energy cunversion (OTEC) concept is discussed. Various areas of the OTEC plant development are examined. These include the design of a marine vessel to house the OTEC power cycle, the development of an OTEC power cycle, studies of the site environment, and the effects of biofouling and corrosion on any of the OTEC components.

A.W.H.

## N80-13713# Rosenblatt (M.) and Son, Inc., New York. OTEC PLATFORM CONFIGURATION AND INTEGRATION, APPENDIXES TO VOLUME 2 Final Report

7 Jul. 1978 159 p

(Contract EG-76-C-01-4065)

(DOE/ET-4065/1-Vol-2-App) Avail: NTIS HC A08/MF A01

Detailed information and conceptual design drawings for the spar and sphere platforms for an OTEC commercial plant are presented. A work breakdown structure and a detailed estimate of the spar platform weight are included.

N80-13714# Rosenblatt (M.) and Son, Inc., New York. OTEC PLATFORM CONFIGURATION AND INTEGATION. **VOLUME 3: PROJECT PLAN Final Report** 

7 Jul. 1978 64 p refs

(DOE/ET-4065/1-Vol-3) Avail: NTIS HC A04/MF A01

The spar and sphere offshore platforms were used to demonstrate the feasibility of a near full size ocean thermal energy conversion (OTEC) plant and to gather data for use in the construction, design and operation of commercial OTEC plants. A hull size suitable to support a 100 MWe net output plant was chosen. Construction of the hull and installation of all equipment is proposed for three sites: (1) a shoreside construction site; (2) an offshore site in sufficient water depth to complete the hull erection; and (3) installation of the cold water pipe at the demonstration site.

N80-13715# National Technical Information Service, Springfield,

GEOTHERMAL ENERGY. PART 1: EXPLORATION, VOLUME 3. CITATIONS FROM THE NTIS DATA BASE Progress Report, May 1976 - Jun. 1979

Audrey S. Hundemann Aug. 1979 264 p Supersedes NTIS/PS-78/0664; NTIS/PS-77/0561 Updates NTIS/PS-76/

(NTIS/PS-79/0814/8; NTIS/PS-78/0664; NTIS/PS-77/0561) Avail: NTIS HC \$28.00/MF \$28.00 CSCL 081

The bibliography cites Federally-funded research on geophysical methods, such as electrical resistivity, seismology, magnetic anomaly, and electromagnetic measurements in geothermal site survey determination. Studies on well logging, remote sensing, geochemistry, mineralogy, radioactivity, mapping, volcanism, and structural geology are also cited. Criteria for location of geothermal areas are suggested in these abstracts. This updated bibliography contains 256 abstracts, 81 of which are new entries to the previous edition. GRA

N80-13716# National Technical Information Service, Springfield,

GEOTHERMAL ENERGY. PART 2: CORROSION AND EQUIPMENT, VOLUME 3. CITATIONS FROM THE NTIS DATA BASE Progress Report, May 1976 - Jul. 1979

Audrey S. Hundemann Aug. 1979 165 p Supersedes NTIS/PS-78/0665: NTIS/PS-77/0562 Updates NTIS/PS-76/ 0463

(NTIS/PS-79/0815/5: NTIS/PS-78/0665: NTIS/PS-77/0562) Avail: NTIS HC \$28.00/MF \$28.00 CSCL 081

Citations of Government-sponsored research reports on corrosion and equipment studies related to geothermal energy are presented. Studies on pumps, turbines, drilling equipment, pipes, nozzles, and well casings are covered, along with studies on materials including concretes, steels and nonferrous alloys. Silica precipitation and scale formation on equipment are also cited. Performance of equipment in working fluids and brines and the chemical processes affecting performance are included. This updated bibliography contains 157 abstracts, 70 of which are new entries to the previous edition.

N80-13717# National Technical Information Service, Springfield. Va.

GEOTHERMAL ENERGY. PART 3: TECHNOLOGY AND GENERAL STUDIES, VOLUME 3. CITATIONS FROM THE NTIS DATA BASE Progress Report, May 1976 - Dec.

Mona F. Smith Aug. 1979 247 p Updates NTIS/PS-76/ 0463

(NTIS/PS-79/0816/3) Avail: NTIS HC \$28.00/MF \$28.00 CSCL 08I

The bibliography covers Government-sponsored research on geothermal energy conversion, power plants, heat extraction, and space heating. Studies on fluid flow, heat transfer, rock fracturing, computerized simulation, pressure, and reservoir engineering are included. Reports on economics, legislation, technology assessment, comparative evaluation with other energy sources, Government policies, and planning are also cited. This updated bibliography contains 239 abstracts, none of which are new entries to the previous edition.

N80-13718# National Technical Information Service, Springfield.

GEOTHERMAL ENERGY, VOLUME 3. CITATIONS FROM THE ENGINEERING INDEX DATA BASE Progress Report, May 1976 - Jul. 1978

Mona F Smith Aug. 1979 329 p

(NTIS/PS-79/0818/9) Avail: NTIS HC \$28.00/MF \$28.00 CSCL 081

Citations from worldwide literature on geothermal energy conversion, feasibility, development, and cost estimates are presented. Studies on geothermal exploration, drilling technology, fluid flow, convection, thermodynamics, heat extraction, and electric power plants are covered. Equipment, corrosion, reservoir engineering, and remote sensing are included. This updated bibliography contains 323 abstracts, none of which are new entries to the previous edition. GRA

N80-13719# National Technical Information Service, Springfield,

GEOTHERMAL ENERGY. PART 3: TECHNOLOGY AND GENERAL STUDIES, VOLUME 4. CITATIONS FROM THE NTIS DATA BASE Progress Report, 1978 - Jun. 1979

Audrey S. Hundemann Aug. 1979 203 p Supersedes NTIS/PS-78/0666; NTIS/PS-77/0563 Updates NTIS/PS-76/

(NTIS/PS-79/0817/1; NTIS/PS-78/0666; NTIS/PS-77/0563; NTIS/PS-76/0463) Avail: NTIS HC \$28.00/MF \$28.00 CSCL

Research on geothermal energy conversion, power plants, heat extraction, and space heating is reported. Studies on fluid flow, heat transfer, rock fracturing, computerized simulation, pressure, and reservoir engineering are included. Reports on economics, legislation, technology assessment, and comparative evaluation with other energy sources, are presented. This updated bibliography contains 195 abstracts, all of which are new entries to the previous edition. GRA

N80-13720# National Technical Information Service, Springfield, Va

GEOTHERMAL ENERGY, VOLUME 4. CITATIONS FROM THE ENGINEERING INDEX DATA BASE Progress Report, Aug. 1978 - Jul. 1979

Audrey S. Hundemann Aug. 1979 149 p Supersedes NTIS/PS-78/0667; NTIS/PS-77/0565; NTIS/PS-76/0465 (NTIS/PS-79/0819/7; NTIS/PS-78/0667; NTIS/PS-77/0565; NTIS/PS-76/0465) Avail: NTIS HC \$28.00/MF \$28.00 CSCL 180

Citations from worldwide literature on geothermal energy conversion, feasibility, development and cost estimates are presented. Studies on geothermal exploration, drilling technology, fluid flow, convection, thermodynamics, heat extraction, and electric power plants are covered. Equipment, corrosion, reservoir engineering, and remote sensing are included. This updated bibliography contains 143 abstracts, all of which are new entries to the previous edition.

N80-13723# Oregon State Univ., Corvallis. Air Resources Center.

CRITIQUE OF THE METEOROLOGICAL AND AIR QUALITY BASELINE MONITORING PROGRAM FOR THE PROTOTYPE OIL SHALE LEASEHOLDS. PART A: COMMENTS ON THE APPROACH TAKEN AND RECOMMENDATIONS FOR CONTINUING PROGRAM. PART B: COMMENTS ON THE DATA ACQUISITION AND MANAGEMENT

W. G. N. Slinn, M. A. Wolf, and J. P. Hennessey, Jr. 1978 58 p refs

(Contract EY-76-S-06-2227)

(DOE/EV-70031/4-Pt-A/B; RLO-2227-T31-4-Pt-A/B) Avail: NTIS HC A04/MF A01

The environmental impact is considered in the event that extensive oil shale resources of Colorado, Utah, and Wyoming are developed to augment the nation's energy needs. Reasons are suggested why existing knowledge is inadequate to provide

a valid answer. A means is proposed for accomplishing this important task within a suitable time-period and at a reasonable level of funding. The probable cause of deficiences is identified in the meteorological and air quality data which were acquired over a two-year period on the Federal oil shale leaseholds and improved procedures for future data acquisition efforts are recommended.

#### N80-13735# Cincinnati Univ., Ohio. Sedimentology Lab. DEVONIAN PALEOCURRENTS OF THE APPLACHIAN RASIN

Paul Edwin Potter, Wayne A. Pryor, Paul Lundegard, Neil Samuels. and J. Barry Maynard May 1979 66 p refs (Contract DE-AC21-76MC-05201)

(METC/CR-79/22) Avail: NTIS HC A04/MF A01

The methodology of paleocurrent studies in shaly basins based on both outcrops and oriented cores is set forth as is the relationship between paleocurrents and gas potential. The paleocurrent system of the central and northern Appalachian basin was found to be uniformly oriented to the west. Paleocurrent indicators are at right angles to isopach of total Devonian thickness, which decreases westward from 12,000 ft in eastern Pennsylvania to a few hundred ft in west central Ohio. This clastic wedge is largely of Upper Devonian age and includes alluvial and delta plain environments as well as shelf turbidite slope, and basin plain environments, the latter representing most of the black shales. The gradient of carbon isotopes, which shows more marine than terrestrial carbon in the western part of the basin, closely parallels the average paleocurrent direction of the basin.

#### N80-13747# Northrop Services, Inc., Huntsville, Ala. SOLAR-CLIMACTIC STATISTICAL STUDY Roger E. Bray Feb. 1979 570 p refs

(Contract EG-77-C-01-4016)

(HCP/T4016-01/2) Avail: NTIS HC A24/MF A01

Historic data (SOLMET) at 26 National Weather Service stations reporting hourly solar insolation and collateral meteorological information were examined to provide an estimate of future trends. Selected insolation and wind power conditions were investigated for their occurrence and persistence for defined periods of time on a monthly basis. Diurnal variations of wind power were also considered. Probability estimates of solar insolation and wind power, alone and in combination, occurring and persisting at or above specified thresholds are presented. Selected probability data for each station are presented graphically, and comprehensive plots for all stations are provided. Information of this nature is intended as an aid to preliminary planning activities for the design of solar and wind energy utilization systems.

#### N80-13754# Mississippi State Univ., State College. THE ANALYSIS OF SEDIMENT SAMPLES FOR HYDROCAR-**BONS Final Report**

Lewis Raymond Brown and Charles Douglas Minchew 30 Oct. 1978 72 p

(Contract DOT-CG-81-76-1476)

(AD-A073822; USCG-D-46-79; CGR/DC-12/79) Avail: NTIS HC A04/MF A01 CSCL 08/8

This document is a report on the hydrocarbon content of 1380 individual surficial samples obtained from areas in the vicinity of three proposed Deep Water Port (DWP) Sites in the Gulf of Mexico during six cruises taken between 1975 and 1978. The samples were analyzed using 2 different LC-fluorescent methods, one of which was selective for petrogenic hydrocarbons and one of which detected both petrogenic and biogenic hydrocarbons. Additionally, nutrient chemical analyses and microbiological analyses were performed on sediment obtained during the first two cruises. All data were evaluated statistically and discussed in terms of sources of inputs, effect on season, and significance for formulating an overall monitoring program for the DWP sites. The results of this study suggest that analysis for both petrogenic and biogenic hydrocarbons should be undertaken in order to more accurately reflect the sources of seasonal variation in hydrocarbon levels at sites of interest. A method of displaying the data is illustrated and discussed. It allows rapid comparisons of the hydrocarbon content of sediments from the various stations.

#### N80-13872 Wisconsin Univ. - Madison.

#### NEWTON'S METHOD FOR GENERALIZED EQUATIONS AND THE PIES ENERGY MODEL Ph.D. Thesis

Norman Harold Josephy 1979 108 p Avail: Univ. Microfilms Order No. 7922122

A number of results concerning the convergence and convergence rates of Newton and quasi-Newton methods for generalized equations are proven. Examples are given to emphasize the application of these methods to generalized equations representing the nonlinear programming problem and the nonlinear complementarity problem. Computational results of Newton's method are presented as applied to the economic equilibrium problem of the Project Independence Evaluation System (PIES) Energy Model. Solutions to a simplified version of PIES are obtained using a Newton method, and comparisons are made to solutions which appeared in the literature. Dissert. Abstr.

#### N80-13906# Los Alamos Scientific Lab., N. Mex. BASELINE DESIGN OF THE THERMOELECTRIC REACTOR SPACE POWER SYSTEM

W. A. Ranken and D. R. Koenig 1979 8 p refs Presented at 14th Intersoc. Energy Conversion Conf., Boston, 5 Aug.

(Contract W-7405-eng-36)

CONF-790803-21) NTIS (LA-UR-79-1242; Avail:

HC A02/MF A01

An extensive review of design alternatives for a nuclear reactor space power system capable of delivering 10 to 100 kW/sub e/ has led to the selection of a heat-pipe-cooled fast spectrum reactor with a thermoelectric power conversion system. The reactor design features a laminated core configuration with sheets of molybdenum - extending across the full diameter of the core interspersed between layers of UO2. Reactor heat is transferred by these sheets from the UO2 to an array of 90 Mo/Na heat pipes that are spaced so that each receives equal power from an essentially uniform fuel loading in the core. This heat is transported by these heat pipes around the LiH shield to a ring of high-power-density thermoelectric modules constructed from modified SiGe alloys. Conversion takes place over a temperature interval of 1375 to 775 K with an efficiency of 9 percent. Residual heat is rejected by a conical radiator that is constructed from cross-coupled beryllium heat pipes.

#### N80-13917# Du Pont de Nemours (E. I.) and Co., Aiken, S. C. US PROGRAM FOR THE IMMOBILIZATION OF HIGH-LEVEL **NUCLEAR WASTES**

J. L. Crandall 8 Jun. 1979 25 p Presented at the Am. Nucl. Soc. Meeting, Atlanta, 3-8 Jun. 1979 (Contract EY-76-C-09-0001) NTIS

Avail: (DP-MS-79-2; CONF-790602-69) HC A02/MF A01

A program developed for the term management of high level nuclear waste is described. The program is designed to immobilize the high level waste in forms that act as highly efficient barriers against radionuclide release to the disposal site and to provide technology for similar treatment of commercial high level waste in case reprocessing of commercial nuclear fuels is ever resumed. Descriptions of commercial wastes, program strategy, program expenditures, development of waste forms, evaluation and selection of waste forms, regulatory aspects of waste form selection, project schedules, and cost estimates for immobilization DOE facilities are discussed.

N80-13941# Argonne National Lab., III. FUSION POWER PROGRAM Quarterly Progress Report, Oct. - Dec. 1978

Apr. 1979 94 p refs (Contract W-31-109-eng-38)

(ANL/FPP-78-4) Avail: NTIS HC A05/MF A01

Research and development areas in nuclear fusion are presented. Areas include: materials; energy storage and transfer; tritium containment, recovery and control; advanced reactor design; atomic data; reactor safety; fusion-fission hybrid systems; and alternate applications of fusion energy. Research progress is reported for each of the following areas: (1) savings in plasma support systems for a Tokamak hybrid reactor; (2) fusion reactor safety studies; (3) energy storage and transfer; (4) test results of the 1.5 MJ pulsed superconducting coil; and (5) atomic data studies

N80-13989\*# Mechanical Technology, Inc., Latham, N. Y. Stirling Engine Systems Div.

#### ASSESSMENT OF THE STATE OF TECHNOLOGY OF **AUTOMOTIVE STIRLING ENGINES**

Sep. 1979 329 p refs (Contracts DEN3-32; EC-77-A-31-10040)

(NASA-CR-159631; DOE/NASA/0032-79/4;

MTI-79ASE77RE2) Avail: NTIS HC A15/MF A01

13F

The current status of automotive Stirling engine technology is considered. The energy is described and the history of its evolution is reviewed. Overall engine, component, subsystem and material problem areas are identified and recommendations are made for further development and testing. Potential improvements are also identified. Projected Stirling engine/vehicle performance is compared to that of vehicles using current internal combustion engine in terms of performance, fuel consumption, multifuel capability, emissions, and noise level. It is concluded that the potential for achieving 1984 program goals is clearly discernible. The program goals require at least a 30 percent reduction in fuel consumption, acceptable emissions, and the capability of satisfactorily operating with a variety of alternate

N80-14114\* # National Aeronautics and Space Administration. Langley Research Center, Hampton, Va.

PRELIMINARY TEST RESULTS OF A FLIGHT MANAGE-MENT ALGORITHM FOR FUEL CONSERVATIVE DESCENTS IN A TIME BASED METERED TRAFFIC ENVIRONMENT Charles E. Knox and Dennis G. Cannon (Boeing Commercial Airplane Co., Seattle, Wash.) Nov. 1979 34 p refs (NASA-TM-80194) Avail: NTIS HC A03/MF A01

A flight management algorithm designed to improve the accuracy of delivering the airplane fuel efficiently to a metering fix at a time designated by air traffic control is discussed. The algorithm provides a 3-D path with time control (4-D) for a test B 737 airplane to make an idle thrust, clean configured descent to arrive at the metering fix at a predetermined time, altitude, and airspeed. The descent path is calculated for a constant Mach/airspeed schedule from linear approximations of airplane performance with considerations given for gross weight, wind, and nonstandard pressure and temperature effects. The flight management descent algorithms and the results of the flight tests are discussed. A.W.H.

N80-14258# Institute of Gas Technology, Chicago, III. DEVELOPMENT OF THE STEAM-IRON PROCESS FOR HYDROGEN PRODUCTION, 9010 Quarterly Report, 1 Apr. - 30 Jun. 1978 Feb. 1979 62 p

(Contract EX-76-C-01-2435)

(FE-2435-32; QR-8) HC A04/MF A01

The operability of the two reactor steam-iron process was demonstrated for an extended period of time, and hydrogen was produced for the first time. Test 15 spanned a period of 24 days and included 106 hours of ore circulation, 36 hours of char feed, and 24 hours of self-sustained hydrogen production. The primary objective of this test was to demonstrate the operability of the steam-iron process. Producer bed temperatures were limited to 1600 F at 200 psig reactor pressure. The quantity of hydrogen produced, therefore, was low. Test 16, the second consecutive hydrogen-producing test, spanned a period of 7 days. Producer bed temperatures were increased to 1650 F to raise the production of hydrogen in the steam-iron reactor. As in Test 15, the reactor internals were completely clean and in excellent condition following the test.

N80-14259# Naval Research Lab., Washington, D. C. MICROBIAL DETERIORATION OF HYDROCARBON FUELS FROM OIL SHALE, COAL, AND PETROLEUM. 1: EXPLOR-

#### ATORY EXPERIMENTS Interim Report

Marian E. May and Rex A. Neihof 20 Aug. 1979 28 p refs (ZF57571004)

(AD-A073761; AD-E000316; NRL-MR-4060) Avail: NTIS HC A03/MF A01 CSCL 21/4

As part of the Navy's program on alternative sources of hydrocarbon fuel, the susceptibility to microbial deterioration of JP-5 derived from oil shale and coal (referred to as synthetic fuels) was investigated and compared with that of petroleum JP-5. Six fungi, including three strains of Cladosporium resinae, a yeast (Candida) and a bacterium (Pseudomonas) which normally grow well in association with petroleum JP-5 were used as test organisms in two-phase systems containing fuel/aqueous media. Most of the test organisms were inhibited to various extents in the presence of the synthetic fuels. An exception was a Fusarium species (fungus) which grew equally well under all three fuels. In mixtures of 75% petroleum and 25% synthetic fuels, microbial growth was generally equivalent to that in 100% petroleum JP-5. A search was made among samples of soil, creosoted wood and tree resins for microorganisms that could thrive in the presence of synthetic fuels. This endeavor produced a strain of C. resinae that grew as well with oil shale JP-5 as with petroleum JP-5. These exploratory experiments indicate that microorganisms adapted to growth with conventional petroleum fuel tend to be inhibited by synthetic fuels, but that organisms probably exist in nature which can readily adapt to and grow in the presence of synthetic fuels.

N80-14263# Institute of Gas Technology, Chicago, III. HIGH-Btu COAL GASIFICATION PROCESSES

C. F. Blazek, N. R. Baker, and R. R. Tison Jan. 1979 refs Prepared for Argonne National Lab. (Contract W-31-109-eng-38)

(ANL/CES/TE-79-2) Avail: NTIS HC A05/MF A01

Estimates of performance and cost data for advanced technology, high-Btu, coal gasification facilities are provided. The six processes discussed reflect the current state-of-the-art development. The information presented is based only on pilot-plant experience. Performance characteristics that were investigated include unit efficiencies, product output, and pollution aspects. Total installed plant costs and operating costs are tabulated for the various processes. The information supplied is expected to assist in selecting energy conversion units for an Integrated Community Energy System.

#### N80-14264# SRI International Corp., Menlo Park, Calif. PROCEEDINGS OF THE 1978 COAL CHEMISTRY WORK-SHOP

S. B. Radding and Howard M. Peters Nov. 1978 204 p refs Conf. held at Menlo Park, Calif., 8-10 Mar. 1978 (Contract ET-78-X-01-2402)

(CONF-780372) Avail: NTIS HC A10/MF A01

The structural chemical analysis of coal and the chemistry of coal gasification and coal liquefaction are discussed. The DOE Fossil Energy Program is discussed in detail and recommendations for further research in coal gasification and coal liquefaction are

N80-14265# Argonne National Lab., III. EXPERIMENTAL VERIFICATION OF THE MERCURY-IODINE THERMOCHEMICAL CYCLE FOR THE PRODUCTION OF HYDROGEN FROM WATER, ANL-4

E. H. Appelman, F. Schreiner, and B. M. Abraham 1978 58 p. refs Presented at the World Hydrogen Energy Conf., Zurich, 21 Aug. 1978

(Contract W-31-109-eng-38)

(CONF-780807-11) Avail: NTIS HC A04/MF A01

A flow diagram for the cycle described was constructed and an overall practical efficiency of 28% in terms of delta G/sub f (H2O)/total heat input) was estimated from the new data. A substantial portion of the total heat input is required for the isolation of the ammonium iodide. The cycle should be capable of producing hydrogen from water with reasonable efficiency and without requiring heat at an unduly high temperature. The cycle should therefore be suitable for a practical demonstration of the technical feasibility of thermochemical hydrogen generation. DOE

N80-14266# Department of Energy, Washington, D. C. Div. of Environmental Control Technology.

LIQUEFIED GASEOUS FUELS SAFETY AND ENVIRONMEN-TAL CONTROL ASSESSMENT PROGRAM Progress Report May 1979 725 p refs

(Contracts EP-78-C-03-2057; EP-78-C-05-6020;

EP-78-C-02-4734; EE-77-S-02-4204; EE-77-S-02-4447;

EE-77-S-02-4548; EY-76-C-06-1830)

(DOE/EV-0036) Avail: NTIS HC A99/MF A01

Research is reported on the safety and environmental aspects of liquefied gaseous fuels including natural gas, petroleum gas, hydrogen, and ammonia. Spills and fires are among the handling, storage, and transportation hazards assessed.

N80-14269# Midwest Research Inst., Golden, Colo. ROUGH COST ESTIMATES OF SOLAR THERMAL/COAL

OR BIOMASS-DERIVED FUELS

R. J. Copeland 1979 8 p refs Presented at AIAA Terrestrial Energy Systems Conf., Orlando, Fla., 4 Jun. 1979

(Contract EG-77-C-01-4042)

(SERI/TP-35-279; CONF-790611-5) HC A02/MF A01

Avail: NTIS

Cost data for one method of producing synthetic methane is presented. A hybrid approach was chosen, a combination of solar thermal and either coal or biomass. The magnitude of the solar thermal resource is estimated as well as projected cost. Cost projections for coal and biomass are accumulated. The cost of synthetic gas from a hybrid and a conventional fuel source are compared.

N80-14271# Argonne National Lab., III.
FUSARIUM SPECIES: THEIR POTENTIAL FOR TRANS-

FORMING BIOMASS TO ETHANOL

Antonios A. Antonopoulos Feb. 1979 26 p refs (Contract W-31-109-eng-38)

(ANL/EES-TM-38) Avail: NTIS HC A03/MF A01

Unlike yeasts and other fungi, Fusaria can ferment both pentoses and hexoses (yeast can ferment only hexoses), and are able to saccharify the cell wall and middle lamella constituents and ferment the released sugar units. Existing research data support well the idea of utilizing selected Fusarium strains to decompose and convert biomass to ethyl alcohol. Since ethanol blends and performs effectively with gasoline (as gasohol), its yield through the Fusarium fermentative action should be exploited. Certain biological, technological, and economic limitations that constrain the application of biomass conversion to ethanol by Fusarium strains today, on a large scale, could be overcome through additional research and development.

N80-14272# California Univ., Davis. Dept. of Agricultural

PILOT PLANT GASIFICATION TEST ON BIOMASS FUELS Interim Report, Jun. - Nov. 1978

John R. Goss Jun. 1979 79 p Sponsored by Calif. State Energy Resources Conserv. and Develop. Comm.

(PB-299077/8; CAEC-36; CAEC-500-79-007) Avail: NTIS HC A05/MF A01 CSCL 07A

A scaled-up version of Swedish down-draft gasifiers, capable of producing 8 million Btu of gas per hour from agricultural and forestry residues, operated over 500 hours which included a continuous run of 330 hours. The gas from the gasifier was burned in a boiler to produce steam, burned in a low-Btu burner to produce heated air, and burned in a 60 kw diesel engine to generate electricity. Data are presented on the operating characteristics, environmental impacts, and equipment costs of the gasifier system. The technical feasibility and requirements of firing steam boilers with low-Btu gas from a gasifier fueled with wood chips was demonstrated.

N80-14273\*# Optical Coating Lab., Inc., City of Industry, Calif. Photoelectronics Div.

ASSESSMENT OF PRESENT STATE-OF-THE-ART SAWING TECHNOLOGY OF LARGE DIAMETER INGOTS FOR SOLAR SHEET MATERIAL Final Report, 1 Sep. 1977 - 28 Feb. H. I. Yoo 1978 126 p refs (Contract JPL-954830)

(NASA-CR-162535; DOE/JPL-954830-78/2) Avail: NTIS HC A07/MF A01 CSCL 13H

Work is reported on: (1) slicing of the ingots with the multiblade slurry saw, the multiwire slurry saw and the I.D. saw. (2) characterization of the sliced wafers, and (3) analysis of add-on slicing cost based on Solar Array Manufacturing Industry Costing Standard.

N80-14279# General Accounting Office, Washington, D. C. Energy and Minerals Div.

#### THE SOLAR IN FEDERAL BUILDINGS DEMONSTRATION PROGRAM

10 Aug. 1979 24 p

(PB-298535/6; EMD-79-84) Avail: NTIS HC A02/MF A01 CSCL 13A

Recommendations are presented for DOE to develop a comprehensive strategy and plan for guiding and integrating conservation and solar efforts for Federal buildings in order to implement the Federal buildings solar program on the scale envisioned by the National Energy Plan and the Congress. GRA

#### N80-14346# Los Alamos Scientific Lab., N. Mex. WAVE PROPAGATION IN A dc SUPERCONDUCTING CABLE. PART 1: ANALYSIS

P. Chowdhuri and Mary-Anne Mahaffy 1979 7 p refs Presented at the IEEE Summer Power Meeting, Vancouver, Canada, Jul. 1979

(Contract W-7405-eng-36)

(LA-UR-79-226; CONF-790713-1) NTIS HC A02/MF A01

A dc superconducting cable design consisting of four concentric metallic cylinders, of which two carry the load current and two comprise the cryogenic enclosure, was studied. The surge-voltage propagation characteristics of a four-conductor dc superconducting cable for a step-function input voltage was analyzed. This analysis, although mainly directed to superconducting cables, is also applicable to other multiconductor transmission lines. DOF

#### N80-14349# Department of Energy, Washington, D. C. ELECTRIC AND HYBRID VEHICLES: COMMERCIALIZA-TION PHASE 3 PLANNING

R. C. Clusen Sep. 1978 37 p refs (DOE/ERD-0004) Avail: NTIS HC A03/MF A01

A program to stimulate the commercialization of electric and hybrid vehicles (EHVs) as a partial solution to the oil consumption problem is presented. The commercialization of EHVs by the purchase or lease and demonstration of state-of-the-art and advanced vehicles through 1985 is described. The major vehicle categories are: (1) specific-mission electric vehicles; (2) general purpose electric vehicles; and (3) general purpose hybrid vehicles. The subjects covered are: the characteristics of the technology, status information on the technical and environmental research and development programs; a milestone chart representing a relationship between a considered commercialization schedule and relevant environmental research and development; and the environmental concerns significant to the technology. DOE

#### N80-14386\* # Rasor Associates, Inc., Sunnyvale, Calif. A CESIUM TELEC EXPERIMENT AT LEWIS RESEARCH **CENTER** Final Report

E. J. Britt Sep. 1979 59 p refs

(Contract NAS3-21149)

(NASA-CR-159729; NSR-8-1) Avail: NTIS HC A04/MF A01 CSCL 20E

The thermoelectronic laser energy converter (TELEC), was studied as a method of converting a 10.6 mm CO2 laser beam into electric power. The calculated characteristics of a TELEC seem to be well matched to the requirements of a spacecraft laser energy conversion system. The TELEC is a high power density plasma device which absorbs an intense laser beam by inverse bremsstrahlung with the plasma electrons. In the TELEC process, electromagnetic radiation is absorbed directly in the plasma electrons producing a high electron temperature. The

energetic electrons diffuse out of the plasma striking two electrodes which are in contact with the plasma at the boundaries. These two electrodes have different areas: the larger one is designated as the collector, the smaller one is designated as the emitter. The smaller electrode functions as an electron emitter to provide continuity of the current. Waste heat is rejected from the collector electrode. An experiment was carried out with a high power laser using a cesium vapor TELEC cell with 30 cm active length. Laser supported plasma was produced in the TELEC device during a number of laser runs over a period of several days. Electric power from the TELEC was observed with currents in the range of several amperes and output potentials of less than 1 volt. The magnitudes of these electric outputs were smaller than anticipated but consistent with the power levels of the laser during this experiment. J.M.S.

N80-14423\* National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, Ala.

COAL-SHALE INTERFACE DETECTION SYSTEM Patent Richard A. Campbell, Jerry L. Hudgins, Paul W. Morris, Harry Reid, Jr., and Joe E. Zimmerman, inventors (to NASA) Issued 12 Jun. 1979 9 p Filed 3 Nov. 1977

(NASA-Case-MFS-23720-2; US-Patent-4,157,655;

US-Patent-Appl-SN-848421; US-Patent-Class-73-12;

US-Patent-Class-73-82) Avail: US Patent and Trademark Office CSCL 081

A coal-shale interface detection system for use with coal cutting equipment consists of a reciprocating hammer on which an accelerometer is mounted to measure the impact of the hammer as it penetrates the ceiling or floor surface of a mine. A pair of reflectometers simultaneously view the same surface. The outputs of the accelerometer and reflectometers are detected and jointly registered to determine when an interface between coal and shale is being cut through.

Official Gazette of the U.S. Patent and Trademark Office

N80-14463# Oklahoma Univ., Norman. Science and Public Policy Program.

ENERGY FROM THE WEST: ENERGY RESOURCE DEVELOPMENT SYSTEMS REPORT. VOLUME 1: INTRODUCTION AND GENERAL SOCIAL CONTROLS Final Report, 1975 - 1978

Irving L. White, Michael A. Chartock, R. Leon Leonard, Steven C. Ballard, Martha Gilliland, Timothy A. Hall, Edward J. Malecki, Edward B. Rappaport, Robert W. Rycroft, Rodney K. Freed et al Mar. 1979 180 p refs Prepared in cooperation with Radian Corp., Austin, Tex. 6 Vol.

(Contract EPA-68-01-1916)

(PB-299177/6; EPA-600/7-79-060A-Vol-1) Avail: NTIS HC A09/MF A01 CSCL 08I

The technologies likely to be used for development of coal, oil shale, uranium, oil, natural gas, and geothermal resources in eight western states (Arizona, Colorado, Montana, New Mexico, North Dakota, South Dakota, Utah, and Wyoming) are described. The technological activites such as exploration, extraction, and conversion for developing the resource, and laws and regulations which affect the development of more than one of the six resources are considered.

N80-14464# Oklahoma Univ., Norman. Science and Public Policy Program.

ENERGY FROM THE WEST: ENERGY RESOURCE DEVEL-OPMENT SYSTEMS REPORT. VOLUME 2: COAL Final Report, 1976 - 1978

Irvin L. White, Michael A. Chartock, R. Leon Leonard, Steven C. Ballard, Martha Gilliland, Timothy A. Hall, Edward J. Malecki, Edward B. Rappaport, Robert W. Rycroft, Rodney K. Freed et al Mar. 1979 395 p refs Prepared in cooperation with Radian Corp., Austin, Tex. 6 Vol.

(Contract EPA-68-01-1916)

(PB-299178/4; EPA-600/7-79-060B-Vol-2) Avail: NTIS HC A17/MF A01 CSCL 08I

The characteristics of coal resources in the western United States are described. A regional overview of number, size, and types of the coal mining operations conducted in Arizona, Colorado, Montana, New Mexico, North Dakota, South Dakota, Utah, and

Wyoming, is presented. Conversion technologies such as coal gasification, liquefaction, and electrical generation are discussed.

N80-14465# Oklahoma Univ., Norman. Science and Public Policy Program.

ENERGY FROM THE WEST: ENERGY RESOURCE DEVEL-OPMENT SYSTEMS REPORT. VOLUME 3: OIL SHALE Final Report, 1975 - 1978

Irvin L. White, Michael A. Chartock, R. Leon Leonard, Steven C. Ballard, Martha Gilliland, Timothy A. Hall, Edward J. Malecki, Edward B. Rappaport, Robert W. Rycroft, Rodney K. Freed et al Mar. 1979 328 p refs Prepared in cooperation with Radian Corp., Austin, Tex. 6 Vol. (Contract EPA-68-01-1916)

(PB-299179/2; EPA-600/7-79-060C-Vol-3) Avail: NTIS HC A15/MF A01 CSCL 08I

The development of oil shale resources in eight Western states (Arizona, Colorado, Montana, New Mexico, North Dakota, South Dakota, Utah, and Wyoming) is discussed. The energy resource base, the technologies used to develop the resource, and the inputs and outputs for each technology development are summarized. The laws and regulations applying to the deployment and operation of each technology are examined.

R.C.T.

N80-14466# Oklahoma Univ., Norman. Science and Public Policy Program.

ENERGY FROM THE WEST: ENERGY RESOURCE DEVELOPMENT SYSTEMS REPORT. VOLUME 4: URANIUM Final Report, 1975 - 1978

Irvin L. White, Michael A. Chartock, R. Leon Leonard, Steven C. Ballard, Martha Gilliland, Timothy A. Hall, Edward J. Malecki, Edward B. Rappaport, Robert W. Rycroft, and Rodney K. Freed Mar. 1979 255 p refs Prepared in cooperation with Radian Corp., Austin, Tex. 6 Vol. (Contract EPA-68-01-1916)

(PB-299180/0; EPA-600/7-79-060D-Vol-4) Avail: NTIS HC A12/MF A01 CSCL 08I

The technologies, inputs, outputs, laws and regulations associated with the development of uranium resources in eight western States (Arizona, Colorado, Montana, New Mexico, North Dakota, South Dakota, Utah, and Wyoming) are described. The exploration, mining, and milling of uranium are discussed and technological alternatives which represent potential development options are sited. Input requirements such as manpower, materials and equipment, economics, water, land, and ancillary energy are reported. Residuals that may pose environmental hazards are surveyed.

N80-14467# Oklahoma Univ., Norman. Science and Public Policy Program.

ENERGY FROM THE WEST: ENERGY RESOURCE DEVEL-OPMENT SYSTEMS REPORT. VOLUME 5: OIL AND NATURAL GAS Final Report, 1975 - 1978

Irvin L. White, Michael A. Chartock, R. Leon Leonard, Steven C. Ballard, Martha Gilliland, Timothy A. Hall, Edward J. Malecki, Edward B. Rappaport, Robert W. Rycroft, and Rodney K. Freed Mar. 1979 231 p refs Prepared in cooperation with Radian Corp., Austin, Tex. 6 Vol.

(Contract EPA-68-01-1916)

(PB-299181/8; EPA-600/7-79-060E-Vol-5) Avail: NTIS HC A11/MF A01 CSCL 08I

The quantity and location of crude oil are discussed. The development of crude oil from exploration to treatment of finished products and enhanced recovery techniques are described. The social controls for crude oil transportation are reported. R.C.T.

N80-14468# Oklahoma Univ., Norman. Science and Public Policy Program.

ENERGY FROM THE WEST: ENERGY RESOURCE DEVELOPMENT SYSTEMS REPORT. VOLUME 6: GEOTHERMAL Final Report, 1975 - 1978

Irvin L. White, Michael A. Chartock, R. Leon Leonard, Steven C. Ballard, Marth Gilliland, Timothy A. Hall, Edward J. Malecki,

Edward B. Rappaport, Robert W. Rycroft, Rodney K. Freed et al Mar. 1979 221 p refs Prepared in cooperation with Radian Corp., Austin, Tex. 6 Vol.

(Contract EPA-68-01-1916)

(PB-299182/6; EPA-600/7-79-060F-Vol-6) Avail: NTIS HC A10/MF A01 CSCL 081

The input requirements and outputs identified with the development and utilization of the geothermal resources of Arizona, Colorado, Montana, New Mexico, North Dakota, South Dakota, Utah, and Wyoming are summarized. The characteristics of geothermal resources are discussed in terms of geology, location, quantity, physical and chemical characteristics and ownership.

N80-14470# Environmental Monitoring and Support Lab., Las Vegas, Nev

#### SURFACE WATER QUALITY PARAMETERS FOR MONITOR-ING OIL SHALE DEVELOPMENT Final Report

W. L. Kinney, A. N. Brecheisen, and V. W. Lambou, Mar. 1979 157 p refs

(PB-297984/7: EPA-600/4-79-018) Avail: NTIS HC A08/MF A01 CSCL 13B

Listings of chemical, physical, and biological parameters which can be used to assess the environmental impact of oil shale development on surface water resources are given. Each of the potential water-related problems is addressed in the context of the probable cumulative regional impact of a maturing, commercial oil shale industry and in terms of local impact resulting from the prototype operation initially planned on leased public lands. The possible effects of potential pollutants on ambient water quality and the resulting impact on aquatic life, public water supplies, livestock, irrigation agriculture, and selected industries are evaluated.

### N80-14471# New Mexico State Univ., Las Cruces. DEEP TERRESTRIAL HEAT FLOW MEASUREMENTS IN NEW MEXICO AND NEIGHBORING GEOLOGIC AREAS

Final Report, 1 Sep. 1976 - 30 Jun. 1978

Marshall Reiter Jun. 1979 85 p refs Prepared jointly with New Mexico Energy and Minerals Dept., Santa Fe and New Mexico Inst. of the Mining and Technology, Socorro (Grant NSF GI-32482)

(PB-299489/5; NMEI-38) Avail: NTIS HC A05/MF A01 CSCL

Experimental aspects of continuous temperature logging, vertical groundwater movement correction for heat flow, and terrestrial heat flow and crustal radioactivity in northeastern New Mexico and southern Colorado are described. GRA

N80-14472\* National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

#### SELF-RECONFIGURING SOLAR CELL SYSTEM Patent Robert P. Gruber, inventor (to NASA) Issued 20 Nov. 1979

10 p filed 19 Jun. 1978 Supersedes N78-27520 (16 - 18, p 2408)

(NASA-Case-LEW-12586-1; US-Patent-4,175,249;

US-Patent-Appl-SN-916655; US-Patent-Class-323-15;

US-Patent-Class-307-63; US-Patent-Class-307-66;

US-Patent-Class-323-19) Avail: US Patent and Trademark Office CSCL 10A

A self-reconfiguring solar cell array is disclosed wherein some of the cells are switched so that they can be either in series or in shunt within the array. This feature of series or parallel switching of cells allows the array to match the load to achieve maximum power transfer. Automatic control is used to determine the conditions for maximum power operation and to switch the array into the appropriate configuration necessary to transfer maximum power to the load.

Official Gazette of the U.S. Patent and Trademark Office

N80-14473\* National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, Ala.

SOLAR CONCENTRATOR Patent

John G. Simpson, inventor (to NASA) Issued 6 Nov. 1979 6 p Filed 30 Nov. 1977 Supersedes N78-13556 (16 - 04. p 0499)

(NASA-Case-MFS-23727-1; US-Patent-4,173,397;

US-Patent-Appl-SN-856465; US-Patent-Class-350-295;

US-Patent-Class-126-438; US-Patent-Class-350-296; US-Patent-Class-126-442) Avail: US Patent and Trademark Office CSCL 10A

An improved solar concentrator is characterized by a number of elongated supporting members arranged in substantial horizontal parallelism with the axis and intersecting a common curve. A tensioned sheet of flexible reflective material is disposed in engaging relation with the supporting members in order to impart to the tensioned sheet a catenary configuration.

Official Gazette of the U.S. Patent and Trademark Office

N80-14474\* National Aeronautics and Space Administration. Pasadena Office, Calif.

METHOD FOR FORMING A SOLAR ARRAY STRIP Patent Robert I. Mueller (JPL) and Robert K. Yasui, inventors (to NASA) (JPL) Issued 13 Nov. 1979 7 p Filed 29 Mar. 1978 Supersedes N78-25560 (16 - 16, p 2138) Division of US Patent Appl. SN-809890, filed 24 Jun. 1977, US Patent-4,133,697 sponsored by NASA

(NASA-Case-NPO-13652-3; US-Patent-4,173,820; US-Patent-Appl-SN-891358; US-Patent-Class-29-572; US-Patent-Class-29-588; US-Patent-Class-29-627; US-Patent-Class-136-89P; US-Patent-Appl-SN-809890; US-Patent-4,133,697) Avail: US Patent and Trademark Office CSCL 10A

A flexible solar array strip is formed by a method which lends itself to automatic production techniques. Solder pads are deposited on printed circuitry deposited on a flexible structure. The resultant substrate is stored on a drum from which it is withdrawn and incrementally advanced along a linear path. Solderless solar cells are serially transported into engagement with the pads which are then heated in order to attach the cells to the circuitry. Excess flux is cleaned from the cells which are encapsulated in a protective coating. The resultant array is then spirally wound on a drum.

Official Gazette of the U.S. Patent and Trademark Office

#### N80-14475 Oklahoma State Univ., Stillwater. A PROBABILISTIC STUDY OF WIND-ELECTRIC CONVER-SION SYSTEMS FROM THE POINT OF VIEW OF RELIABIL-ITY AND CAPACITY CREDIT Ph.D. Thesis

Raghvendrarao Girirao Deshmukh 1979 167 p Avail: Univ. Microfilms Order No. 7928197

Probabilistic models developed for wind energy conversion systems (WECS) are integrated with models of other power system components in order to evaluate the reliability of WECS assisted utility systems. A mathematical Weibull distribution function is used to model the actual wind speed distribution. It is shown that with a fixed wind regime and generation mix, an increase in the load demand causes only a slight increase in the risk index as long as the load value is less than or equal to the conventional generation capacity in the system. A load model based on the Markov chain with hourly peak load values is utilized in determining the load carrying capability of WECS assisted systems. The effect of including a transmission line is studied using two basic system configurations. It is shown that the interconnection of two WECS located in different wind regimes increases the availabilities of different capacities. Dissert. Abstr.

#### N80-14476 Mississippi State Univ., State College. VISUALIZATION OF NATURAL CONVECTION IN FLAT PLATE SOLAR COLLECTORS Ph.D. Thesis

Benjamin Okechukwu Okeke 1979 154 p

Avail: Univ. Microfilms Order No. 7927095

The effects of variations in gap spacing on the convective heat flow patterns between the collector surface and the glazing were determined. Visual and photographic observations were made through transparent plexiglas side walls, using tobacco smoke to make the flow patterns visible. Results indicate that the critical Rayleigh number was only marginally dependent on variations to the air gap width. A substantial increase in the critical Rayleigh number was observed as the horizontal temperature gradient was increased. The first sign of natural convection was seen to be a set of steady side-by-side transverse rolls increasing in size towards the higher temperature end of the test enclosure. Representative still photographs of the observed flow patterns are presented. Dissert. Abstr.

N80-14477 Kentucky Univ., Lexington. PHOTOVOLTAIC ENERGY CONVERSION IN POLYMER FILMS Ph.D. Thesis

Harin Shrinivas Ullal 1979 219 p Avail: Univ. Microfilms Order No. 7927725

Photovoltaic energy conversion in poly-n-vinyl carbazole (PVK) and 2,4,7-trinitro-9-fluorenone (TNF) in the ratio (1:1) was investigated. It was determined that the maximum photovoltaic energy conversion efficiency is controlled by two critical parameters, namely the barrier height and the film thickness. The energy conversion efficiency was found to increase significantly by using low work function metal electrodes such as Sm. Conversely, by using high work function metal electrodes such as Pt, there is a marked decrease in the energy conversion efficiency. Also, there is a dramatic change in the energy conversion efficiency when there is a change in the film thickness. Model predictions and results of photoemission, dark current, and photocurrent studies are given. Dissert. Abstr.

N80-14478# PRC Energy Analysis Co., McLean, Va.
SATELLITE POWER SYSTEM (SPS): AN OVERVIEW OF PROSPECTIVE ORGANIZATIONAL STRUCTURES IN THE

SOLAR SATELLITE FIELD
H. G. Edler Oct. 1978 19 p refs
(Contract EG-77-C-01-4024) (TID-29094) HC A02/MF A01

A literature survey, interviews with acknowledged experts in the fields of organizational entities, space, solar energy, and the SPS concept, and an analysis of these inputs to identify the organizational alternatives and make judgments as to their feasibility to serve as patterns for a future SPS entity are presented. Selection and evaluation criteria were determined to include timeliness, reliability, and adequacy to contribute meaningfully to the U.S. supply; political feasibility (both national and international) and cost-effectiveness (including environmental and other external costs). Based on these criteria, four organizational alternatives are discussed which offer reasonable promise as potential options for SPS. These included three domestic alternatives and one international alternative.

N80-14480\*# Power Electronics Associates, Inc., Lincoln, Mass. BI-DIRECTIONAL FOUR QUADRANT (BDQ4) POWER CONVERTER DEVELOPMENT Final Report

Francis C. Schwarz 20 Dec. 1979 249 p refs

(Contract NAS3-30363)

(NASA-CR-159660) Avail: NTIS HC A11/MF A01

The feasibility for implementation of a concept for direct ac/dc multikilowatt power conversion with bidirectional transfer of energy was investigated. A 10 kHz current carrier was derived directly from a common 60 Hz three phase power system. This carrier was modulated to remove the 360 Hz ripple, inherent in the three phase power supply and then demodulated and processed by a high frequency filter. The resulting dc power was then supplied to a load. The process was implemented without the use of low frequency transformers and filters. This power conversion processes was reversible and can operate in the four quadrants as viewed from any of the two of the converter's ports. Areas of application include: power systems on air and spacecraft; terrestrial traction; integration of solar and wind powered systems with utility networks; HVDC; asynchronous coupling of polyphase networks; heat treatment; industrial machine drives; and power supplies for any use including instrumentation.

N80-14481\*# Burt, Hill, Kosar, Rittleman, and Associates, Butler,

RESIDENTIAL PHOTOVOLTAIC MODULE AND ARRAY REQUIREMENTS STUDY, APPENDICES Final Report

S. L. Nearhoof and J. R. Oster Jun. 1979 560 p Sponsored by NASA Prepared for JPL and DOE

(Contract JPL-955149)

(NASA-CR-162529; DOE/JPL-955149-79/1-App) Avail: NTIS HC A24/MF A01 CSCL 10B

Regional building code variations, federal and city codes, and the national electric code are reviewed for their possible effects on the design of photovoltaic modules. Problems that photovoltaic arrays may impose on the insurability of residences are also discussed. Mounting configurations are developed for the modules, and grounding, wiring, terminal, and voltage requirements are established. Installation and materials costs are presented along with performance criteria.

N80-14482\* Burt, Hill, Kosar, Rittleman, and Associates, Butler,

RESIDENTIAL PHOTOVOLTAIC MODULE AND ARRAY REQUIREMENTS STUDY Final Report

S. L. Nearhoof and J. R. Oster Jun. 1979 64 p refs Prepared for JPL and DOE (Contract JPL-955149)

(NASA-CR-162528; DOE/JPL-955149-79/1) Avail: NTIS HC A04/MF A01 CSCL 10B

Design requirements for photovoltaic modules and arrays used in residential applications were identified. Building codes and referenced standards were reviewed for their applicability to residential photovoltaic array installations. Four installation types were identified - integral (replaces roofing), direct (mounted on top of roofing), stand-off (mounted away from roofing), and rack (for flat or low slope roofs, or ground mounted). Installation costs were developed for these mounting types as a function of panel/module size. Studies were performed to identify optimum module shapes and sizes and operating voltage cost drivers. It is concluded that there are no perceived major obstacles to the use of photovoltaic modules in residential arrays. However, there is no applicable building code category for residential photovoltaic modules and arrays and additional work with standards writing organizations is needed to develop residential module and array requirements.

N80-14483\*# Battelle Columbus Labs., Ohio. DEVELOPMENT OF AN ACCELERATED TEST DESIGN FOR PREDICTING THE SERVICE LIFE OF THE SOLAR ARRAY AT MEAD, NEBRASKA Final Report

G. B. Gaines, R. E. Thomas, G. T. Noel, T. S. Shilliday, V. E. Wood, and D. C. Carmichael 7 Jun. 1979 61 p refs Prepared for JPL and DOE

(Contract JPL-954328)

(NASA-CR-162534; DOE/JPL-954328-79/13) Avail: NTIS HC A04/MF A01 CSCL 10A

An accelerated life test is described which was developed to predict the life of the 25 kW photovoltaic array installed near Mead, Nebraska. A quantitative model for accelerating testing using multiple environmental stresses was used to develop the test design. The model accounts for the effects of thermal stress by a relation of the Arrhenius form. This relation was then corrected for the effects of nonthermal environmental stresses, such as relative humidity, atmospheric pollutants, and ultraviolet radiation. The correction factors for the nonthermal stresses included temperature-dependent exponents to account for the effects of interactions between thermal and nonthermal stresses on the rate of degradation of power output. The test conditions, measurements, and data analyses for the accelerated tests are presented. Constant-temperature, cyclic-temperature, and UV types of tests are specified, incorporating selected levels of relative humidity and chemical contamination and an imposed forward-bias current and static electric field.

N80-14484\*# General Electric Co., Cincinnati, Ohio. A CONCEPTUAL DESIGN STUDY ON THE APPLICATION OF LIQUID METAL HEAT TRANSFER TECHNOLOGY TO THE SOLAR THERMAL POWER PLANT Final Report

W. F. Zimmerman, C. S. Robertson, C. L. Ehde, S. M. Divakaruni, and L. E. Stacy 25 Sep. 1979 166 p refs Sponsored by NASA Prepared for JPL and DOE (Contract JPL-955018)

(NA SA - CR - 162544; DOE/JPL-1060/28; GEAEP-54) NTIS HC A08/MF 01 CSCL 10A Avail:

Alkali metal heat transfer technology was used in the development of conceptual designs for the transport and storage of sensible and latent heat thermal energy in distributed concentrator, solar Stirling power conversion systems at a power level of 15 kWe per unit. Both liquid metal pumped loop and heat pipe thermal transport were considered; system configurations included: (1) an integrated, focal mounted sodium heat pipe solar receiver (HPSR) with latent heat thermal energy storage; (2) a liquid sodium pumped loop with the latent heat storage, Stirling engine-generator, pump and valves located on the back side of the concentrator; and (3) similar pumped loops serving several concentrators with more centralized power conversion and storage. The focus mounted HPSR was most efficient, lightest and lowest in estimated cost. Design confirmation testing indicated satisfactory performance at all angles of inclination of the primary heat pipes to be used in the solar receiver. Author

N80-14487\*# Purdue Univ., Lafayette, Ind. ANALYSIS AND SIMULATION OF WIND ENERGY SYSTEMS Final Report

P. C. Krause Nov. 1979 60 p refs

(Grant NsG-3237)

(NASA-CR-162538) Avail: NTIS HC A04/MF A01 CSCL 10A

Using a wind fluctuation model, simulation results of the mechanical and electrical systems were obtained for the MOD-2 wind turbine generator system. The dynamic performance of the MOD-2 was studied during wind gusts of the 1-cos form from a constant wind velocity. If these are the type of wind fluctuations to which the wind systems will be subjected to, then the design of the MOD-2 appears adequate. There was one exception to this; with a rate limit incorporated in the pitch controller, an instability occurred during a 'down' gust which caused continuous, unbounded switching between the high and low modes. This is a control design problem which appears to be correctable.

N80-14488\*# Jet Propulsion Lab., California Inst. of Tech., Pasadena

APPLICATION OF FIELD-MODULATED GENERATOR SYSTEMS TO DISPERSED SOLAR THERMAL ELECTRIC GENERATION

R. Ramakumar 15 Aug. 1979 94 p refs Sponsored in part by DOE

(Contract NAS7-100; JPL Proj. 5102-136)

(NASA-CR-162536; JPL-Pub-79-83; DOE/JPL-1060-25) Avail: NTIS HC A05/MF A01 CSCL 10A

The state-of-the-art of field modulated generation system (FMGS) is presented, and the application of FMGS to dispersed solar thermal electric generation is discussed. The control and monitoring requirements for solar generation system are defined. A comparison is presented between the FMGS approach and other options and the technological development needs are discussed. R.E.S.

N80-14491\*# Jet Propulsion Lab., California Inst. of Tech., Pasadena.

SOLAR THERMAL POWER SYSTEMS ADVANCED SOLAR THERMAL TECHNOLOGY PROJECT, ADVANCED SUB-SYSTEMS DEVELOPMENT Semiannual Progress Report, 1 Oct. 1978 - 1 Apr. 1979

15 Aug. 1979 110 p Original contains color illustrations (Contracts NAS7-100; DE-AI01-79ET-20307; JPL Proj. 5102-117)

(NASA-CR-162546; DOE/JPL-106Q-20; JPL-Pub-79-107;

SAPR-3) Avail: NTIS HC A06/MF A01 CSCL 10B

The preliminary design for a prototype small (20 kWe) solar thermal electric generating unit was completed, consisting of several subsystems. The concentrator and the receiver collect solar energy and a thermal buffer storage with a transport system is used to provide a partially smoothed heat input to the Stirling engine. A fossil-fuel combustor is included in the receiver designs to permit operation with partial or no solar insolation (hybrid). The engine converts the heat input into mechanical action that powers a generator. To obtain electric power on a large scale, multiple solar modules will be required to operate in parallel.

The small solar electric power plant used as a baseline design will provide electricity at remote sites and small communities.

N80-14492\*# Jet Propulsion Lab., California Inst. of Tech.,

SILICON MATERIALS OUTLOOK STUDY FOR 1980-1985 CALENDAR YEARS

E. Costogue, R. Ferber, W. Hasbach, R. Pellin, and C. Yaws 1 Nov. 1979 74 p refs Sponsored in part by DOE (Contract NAS7-100; JPL Proj. 5230-1-Rev-A)

(NASA-CR-162541; JPL-Pub-79-110; DOE/JPL-1012-33) Avail: NTIS HC A04/MF A01 CSCL 10A

The polycrystalline silicon industry was studied in relation to future market needs. Analysis of the data obtained indicates that there is a high probability of polycrystalline silicon shortage by the end of 1982 and a strong seller's market after 1981 which will foster price competition for available silicon. R.E.S.

N80-14493\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

STATUS OF THE DOE/NASA CRITICAL GAS TURBINE RESEARCH AND TECHNOLOGY PROJECT

John S. Clark 1980 21 p refs Proposed for presentation the 25th Annual Gas Turbine Conf., New Orleans, 9-13 Mar. 1980; sponsored by the Am. Soc. of Mech. Engineers (Contract EF-77-A-01-2593)

(NASA-TM-79307; DOE/NASA/2593-79/11; E-263) Avail: NTIS HC A02/MF A01 CSCL 10B

Activities performed in order to provide an R&T data base for utility gas turbine systems burning coal-derived fuels are described. Experiments were run to determine the corrosivity effects of trace metal contaminants (and potential fuel additives) on gas turbine materials and these results were correlated in a corrosion-life prediction model. Actual fuels were burned in a burner rig hot corrosion test to verify the model. A deposition prediction model was assembled and compared with results of actual coal-derived fuel deposition tests. Thermal barrier coatings were tested to determine their potential for protecting gas turbine hardware from the corrosive contaminants. Several coatings were identified with significantly improved spallation-resistance (and, hence, corrosion resistance). A.R.H.

N80-14494# Rensselaer Polytechnic Inst., Troy, N. Y. Center for Architectual Research.

BARRIERS TO THE APPLICATION OF WIND ENERGY CONVERSION SYSTEMS IN URBAN SETTINGS

Robert E. Duffy, Walter M. Kroner, ed., Michael Kwartler, and George W. Ulseth Dec. 1979 176 p refs Sponsored by New York State Energy Res. and Develop. Authority Avail: NTIS HC A09/MF A01

The issues which arise through such activities as the planning/building regulatory process, location selection, mounting or installation, and operation and maintenance of wind energy conversion systems (WECS) were identified and analyzed in relation to their legal environmental, technical, institutional, economic, safety, and social impacts. Case studies and simulation were performed, and potential differences in barriers described in national publications were compared with conditions unique to the northeast region and/or to New York State. Those urban areas in New York State where sufficient wind power is available for WECS consideration were identified, and the legal instruments and jurisdictional constraints relevant to them were analyzed.

ARH

N80-14495\*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, Ala.

DEVELOPMENT AND TESTING OF THE JUNKEEPER CONTROL CORPORATION INTEGRATED PROGRAM-MABLE ELECTRONIC CONTROLLER AND HYDRONICS PACKAGE Final Report

James D. Hankins Aug. 1979 21 p refs (NASA-TM-78244) Avail: NTIS HC A02/MF A01 CSCL 10A

Additional developmental work on the existing programmable electronic controller and hydronic package for use with solar heating and cooling systems is summarized. The controller/ hydronics subsystems passed all acceptance tests and performance criteria. The subsystems were shown marketable for public use.

N80-14496\*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, Ala.

DEVELOPMENT AND TESTING OF THE RHO SIGMA INCORPORATED MICROPROCESSOR CONTROL SUB-SYSTEM Final Report

James D. Hankins Oct. 1979 23 p refs Sponsored in part by DOE

(Contract NAS8-32256)

(NASA-TM-78246) Avail: NTIS HC A02/MF A01 10A

Product development and performance tests of three programmable microprocessor controllers for use with solar heating and cooling systems are presented. The products were developed to be marketable for public use.

N80-14497\*# Wyle Labs., Inc., Huntsville, Ala. Solar Energy

THERMAL PERFORMANCE EVALUATION OF THE SUN-CATCHER SH-11 (LIQUID) SOLAR COLLECTOR

Jul. 1980 22 p Prepared for DOE

(Contract NAS8-32036)

(NASA-CR-161253) Avail: NTIS HC A02/MF A01 10A

The procedures used and the results obtained during the evaluation test program on the Solar Unlimited, Inc., Suncatcher SH-11 (liquid) solar collector are presented. The flat-plate collector case assembly is made of .08 inch aluminum 3003 H14 riveted with fiberglass board insulation. The absorber consists of collared aluminum fins mechanically bonded to 3/8 inch copper tubing and coated with 3M Nextel black. Water is used as the working fluid. The glazing is made of a single glass, 1/8 inch water white, tempered and antireflective. The collector weight is 85 pounds with overall external dimensions of about 35.4 in x 82.0 in x 4.0 in. Thermal performance data on the Solar Unlimited Suncatcher SH-11 solar collector under simulated conditions were conducted using the MSFC Solar Simulator.

N80-14498\*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, Ala.

DEVELOPMENT AND TESTING OF THE SOLAR CONTROL CORPORATION MODULAR CONTROLLER AND SOLAR-STAT SUBSYSTEM Final Report

James D. Hankins Aug. 1979 15 p refs Prepared for DOE Prepared by Solar Control Corp., Boulder, Colo.

(Contract NAS8-32258)

(NASA-TM-78243) Avail: NTIS HC A02/MF A01 CSCL 10A

Results of development work on an existing controller and solarstat subsystem for use with solar heating and cooling systems are presented. The deliverable end items, program objectives, and how they were accomplished are described. It is shown that the products developed are marketable and suitable for public

N80-14499\*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, Ala.

DEVELOPMENT, TESTING AND CERTIFICATION OF THE SIGMA RESEARCH, MAXI-THERM-S-101 THERMOSYPHON HEAT EXCHANGER Final Report

James D. Hankins Oct. 1979 19 p refs (NASA-TM-78245) Avail: NTIS HC A02/MF A01 10A

A thermosyphon liquid-to-air heat exchanger developed for use in heating systems in residential single family dwellings and small commercial applications is described. The cabinet design, rationale for the horizontal positioning of the exchanger, and design of the shut-off valve are discussed. The performance of the heating module is given in tabular form. JMS

N80-14500\*# Wyle Labs., Inc., Huntsville, Ala. RESULTS OF THERMAL PERFORMANCE EVALUATION OF THE OWENS-ILLINOIS SUNPACK LIQUID SOLAR COLLEC-TOR AT INDOOR CONDITIONS

10 Oct. 1979 28 p refs Prepared for DOE (Contract NAS8-32036)

(NASA-CR-161189) Avail: NTIS HC A03/MF A01 **CSCL** 10A

Test procedures and results of the thermal performance of a liquid, evacuated tube, solar collector under simulated conditions are presented. The collector tested was a module used on the early demonstration projects.

N80-14501\*# National Aeronautics and Space Administration. Marshall Space Flight Center, Huntsville, Ala.

COMPUTER PROGRAM FOR ASSESSING THE ECONOMIC FEASIBILITY OF SOLAR ENERGY FOR SINGLE FAMILY RESIDENCES AND LIGHT COMMERCIAL APPLICATIONS J. Alan Forney (Systems Analysis and Integration Lab.), David Walker (Computer Sciences Corp., Huntsville, Ala.), and Mike Lanier (Computer Sciences Corp., Huntsville, Ala.) Sep. 1979 147 p (NASA-TM-78251) Avail: NTIS HC A07/MF A01

Computer program, SHCOST, was used to perform economic analyses of operational test sites. The program allows consideration of the economic parameters which are important to the solar system user. A life cycle cost and cash flow comparison is made between a solar heating system and a conventional system. The program assists in sizing the solar heating system. A sensitivity study and plot capability allow the user to select the most cost effective system configuration.

N80-14502# Boston Univ., Mass. Dept. of Chemistry. PHOTOSENSITIZATION MECHANISMS FOR ENERGY STORING ISOMERIZATIONS Technical Report, 1 Nov. 1976 - 28 Feb. 1979

Guilford Jones, II, Phan Thanh Xuan, and Sheau Hwa Chiang 1 Jul. 1979 32 p refs

(Contract N00014-76-C-0442)

10B

(AD-A074968; TR-9) Avail: NTIS HC A03/MF A01 07/4

The results of a study of photochemical storage of radiant energy in organic molecules are reviewed and prospects for the reversible storage of solar energy outlined. A number of intramolecular cycloaddition reactions are identified as candidates for efficient photochemical energy storage and findings concerning the mechanisms of these reactions are discussed. Strategies for the photosensitization of reactions to visible light are evaluated. The use of wavelengths past 500 nm is demonstrated for an energy storing isomerization which is efficiently driven by a triplet energy transfer mechanism.

N80-14503# Boston Univ., Mass. Dept. of Chemistry. ENERGY STORING ORGANIC PHOTOREACTIONS Final Report, 1 Nov. 1975 - 28 Feb. 1979 G. Jones, II 1 Aug. 1979 11 p refs

(Contract N00014-76-C-0442)

(AD-A074915) Avail: NTIS HC A02/MF A01 CSCL 10/3 Results of a study of energy storing organic photoreactions are summarized. Discussion includes criteria for efficient photon energy storage, quantum yield and other quantitative results for

a variety of photoisomerization and photoaddition reactions, the nature of intermediates for these photoreactions, photochemistry of charge-transfer complexes, and prospects for photochemical storage of solar energy.

N80-14504# Dayton Univ., Ohio. School of Engineering. ANALYSIS OF REMOTE SITE ENERGY STORAGE AND GENERATION SYSTEMS Final Technical Report, Jul. 1978 - Jun. 1979

J. N. Crisp, W. S. Bishop, J. D. Pinson, and L. A. Anderson Jul. 1979 148 p refs (Contract F33615-77-C-2004)

(AD-A074869; UDR-TR-79-35; UDSE-TR-79-02; AFESC/ESL-TR-79-20) Avail: NTIS HC A07/MF A01 CSCL 10/2

This report presents the results of an investigation and analysis of energy storage systems and alternate energy sources for remote site applications. The first phase of the effort centered on the broad based study of hydrogen storage, thermal storage, batteries, and flywheels as energy storage systems along with wind turbine, solar photovoltaic, and solar thermionic energy converters. A wind turbine battery system was recommended based on performance, cost and availability. Effort under the second phase of the program concentrated on a system using two separate nominal eight kilowatt wind turbine modules in conjunction with a lead-acid battery energy storage unit. The system was specified to operate in conjunction with an existing power grid system located at Bar Main, Barter Island, Alaska. Specific system concepts and recommendations are presented with supporting analyses. A design checklist is included with specific items for consideration in the preparation of a design specification. GRA

N80-14505# GTE Sylvania, Inc., Needham Heights, Mass. Communications Systems Div.

LITHIUM INORGANIC ELECTROLYTE BATTERY DEVELOP-MENT Interim Report, Jun. 1977 - Oct. 1978

F. Goebel Apr. 1979 60 p refs

(Contract F33615-77-C-2021; AF Proj. 3145)

(AD-A073858; AFAPL-TR-79-2026)

Avail: NTIS

HC A04/MF A01 CSCL 10/3

This report presents the results of the first half of a three year program to conduct exploratory development to improve the safety/performance characteristics of lithium anode/inorganic electrolyte batteries. Development has been conducted in 3 major areas: capacity retention of cylindrical cells, low temperature capability of cylindrical cells, and abuse tests of cylindrical and prismatic cells. Significant accomplishments include providing capacity down to the 3.0 volt level cutoff at -40 degrees and no venting or explosion of cells during abuse tests, except during incineration when it is expected.

N80-14508# Department of Energy, Washington, D. C. COMMERCIALIZATION STRATEGY REPORT FOR HYDROTHERMAL ELECTRIC AND DIRECT HEAT APPLICATION R. A. Black, J. V. Dionne, L. Falick, and E. B. Harvey [1979] 98 p

(TID-2884-Draft) Avail: NTIS HC A05/MF A01

The use of vapor dominated hydrothermal resources for production of electric power is discussed. The ability to handle high temperature, low to moderate-salinity geofluids and convert the heat to usable power using existing technology is reviewed. The use of high temperature, high salinity brines, and moderate temperature resources is examined for economic operation. Technical risks and environmental acceptability are discussed along with technical, market/economic, environmental, institutional readiness, and benefit analysis. A commercialization plan for hydrothermal electric and direct heat applications is presented.

DOE

#### N80-14509# Oak Ridge National Lab., Tenn. OUTLOOK FOR NUCLEAR FISSION ENERGY

T. D. Anderson 1978 14 p refs Presented at 2d Ann. Intern. Conf. on Energy, Washington, D.C. (Contract W-7405-eng-26)

(CONF-7811126-1) Avail: NTIS HC A02/MF A01

The status of nuclear power as an energy source is discussed. The development of light water breeder reactors for electric power generation is examined. Present nuclear energy research and development are reported. The electric utility industry's commitment to nuclear power and the effects of the energy crisis on the nuclear power inudstry are examined.

A.W.H.

N80-14510# Little (Arthur D.), Inc., Cambridge, Mass.
ENERGY ANALYSIS OF THE BASIC MATERIALS UTILIZED
IN ELECTRIC POWER TRANSMISSION SYSTEMS

30 Apr. 1979 353 p

(Contract EC-77-C-01-5043)

(HCP/T5043-01) Avail: NTIS HC A16/MF A01

The energy content per mile of installed underground and overhead power transmission systems was calculated for the following types of systems: self contained oil filled cables; HPOF pipe type cables; extruded dielectric cables; compressed gas insulated systems; overhead lines (ac and dc); and two proposed superconducting systems (ac and dc). The system operating voltages analyzed included 138, 230, 345, 500, 765 and 1,200 kV for ac systems. Systems were not analyzed at the higher voltages. Installation energy requirements, generally 10% or less of the inherent system energy content based on the materials used in each system, are discussed. The energy content of 36 materials and basic products, in terms of Btu per ton, was calculated. Substitution of conductor materials (e.g., aluminum for copper) in cable systems are examined in relation to total system energy content.

N80-14511# Tennessee Univ., Knoxville. Dept. of Civil Engineering.

SIMULATION APPROACH FOR BASE-LINE ENERGY-SITING ANALYSIS

R. L. Church and E. L. Hillsman (Oak Ridge Natl. Lab., Tenn.) 1979 16 p refs Presented at Instrument Soc. of Am., Pittsburgh Modeling and Simulation Conf., Pittsburgh, 25 Apr. 1979 (Contract W-7405-eng-26)

(CONF-790459-22) Avail: NTIS HC A02/MF A01

A simulation model for predicting regional energy-siting patterns is discussed. The model results are used to project regional environmental and economic impacts for DOE. Emphasis is placed on modifications, which include casting the siting decision within a multiobjective framework and including intermediate optimizing capabilities to meet water resource and other constraints.

## N80-14512# Brookhaven National Lab., Upton, N. Y. HIGHLIGHTS OF THE ENERGY TECHNOLOGY PROGRAMS Annual Report

Dec. 1978 49 p

(Contract EY-76-C-02-0016)

(BNL-50959) Avail: NTIS HC A03/MF A01

Activities in: electrolysis based hydrogen energy storage systems; an electrochemically regenerative hydrogen-halogen energy storage system; fuel cells (materials and electrolysis); high temperature water electrolysis; and hydrogen energy storage systems for automobile propulsion are summarized. Energy programs reported on include: solar assisted heat pump systems; solar cooling subsystems and systems; solar demonstration projects; hardware simulators for tests of solar cooling/heating systems; fossil energy programs; catalytic process for conversion of synthesis gas to methanol; coal fired heater; coal/oil mixture combustion; rotating fluidized bed containing limestone for removal of sulfur from hot gases; improved oil and gas burners; and residue and waste fuels.

N80-14514# Brookhaven National Lab., Upton, N. Y. National Center for Analysis of Energy Systems.

DYNAMIC ENERGY SYSTEM OPTIMIZATION MODEL

E. A. Cherniavsky, L. L. Juang, and H. Abilock May 1979 119 p

(Contract EY-76-C-02-0016)

(EPRI-EA-1079) Avail: NTIS HC A06/MF A01

The dynamic energy system optimization model (DESOM) developed to investigate the roles of different technologies in the energy system over an extended period of time is discussed. Means to improve computational features of the program, to incorporate electric sector detail into the existing version of DESOM, and to transfer the DESOM model to EPRI are examined.

N80-14515# Department of Energy, Washington, D. C. Office of State and Local Governments.

REPORT TO THE CONGRESS ON THE COORDINATION OF FEDERAL ENERGY CONSERVATION PROGRAMS INVOLVING STATE AND LOCAL GOVERNMENTS

May 1979 117 p

(DOE/TIC-10127) Avail: NTIS HC A06/MF A01

Four laws which authorize the government to develop and implement specific energy conservation programs are discussed.

The development, implementation, and administration of the energy programs are examined and the coordination activities between Federal, State, and Local governments on the energy programs are analyzed.

A.W.H.

N80-14516# Illinois Univ., Urbana. Center for Advanced Computation.

NEW HYBRID 1971 ENERGY INTENSITIES, PART 1 Final Report

P. S. Penner, R. A. Herendeen, and T. Milke Dec. 1978 9 p refs

(Contract EM-78-S-02-4628)

(COO-4628-4-Pt-1) Avail: NTIS HC AO2/MF AO1

A set of hybrid energy intensities from 1971 direct energy use data and 1967 economic input/output information are computed and discussed. Energy intensities represent the total energy used through the economy to produce one unit of output from each of the 90 sectors defined as spanning the U.S. economy in 1967. The data base discussed contains, among other items, data on the consumption of over 100 fuel types by 154 consuming sectors in the U.S. economy.

N80-14517# California Univ., Livermore. Lawrence Livermore

US ENERGY FLOW IN 1978

W. J. Ramsey 11 Jun. 1979 6 p (Contract W-7405-eng-48)

Avail: NTIS HC A02/MF A01

An energy flow diagram for the U.S. for 1978 is presented. Some significant differences between 1977 and 1978 are: total energy use increased 1.8%; oil imports decreased to 17.4 quads, more than 7% below 1977; coal and natural gas remained about constant; the industrial sector remains unique in that its energy use decreased somewhat due to conservation efforts; delivered nuclear power increased by 8%, supplying one-eighth of all electricity; and a trend toward electrification continued with distributed electrical energy increasing by 3.9%.

## N80-14518# Midwest Research Inst., Golden, Colo. APPLICATION OF DIFFUSION RESEARCH TO SOLAR ENERGY POLICY ISSUES

J. D. Roessner Mar. 1979 35 p refs (Contract EG-77-C-01-4042)

(SERI/TR-51-194) Avail: NTIS HC A03/MF A01

Two types of information requirements that appear to be basic to DOE solar energy policy decisions are examined: (1) how can the future market success of solar energy technologies be estimated, and (2) what factors influence the adoption of solar energy technologies, and what specific programs could promote solar energy adoption most effectively? The ability of a body of research, referred to here as diffusion research, to supply information that could partially satisfy these requirements is assessed. The strengths and limitations of current knowledge about the diffusion of innovations are summarized, the applicability of both existing knowledge and the diffusion approach to the identified solar energy policy issues are discussed, and ways are suggested in which diffusion approaches can be modified and existing knowledge employed to meet short and long term goals of DOE. DOF

N80-14519# Midwest Research Inst., Golden, Colo.
IMPLEMENTATION OF STATE SOLAR INCENTIVES:
LAND-USE PLANNING TO ENSURE SOLAR ACCESS
P. Pollock Mar. 1979 41 p refs
(Contract EG-77-C-01-4042)
(SERI/TR-51-163) Avail: NTIS HC AO3/MF AO1

State incentives in land use planning to ensure solar access are examined to determine issues in program design and implementation. These incentives include broad legislative grants of solar rights, application of nuisance law to solar collector shading, removal of restrictive covenants or establishment of covenants to protect solar access, provision for privately negotiated solar easements, and land use planning and regulation to include passive solar design and provision for active solar collection in land use development. Oregon is engaged in a statewide, mandated local comprehensive planning process which includes

consideration of energy conservation and renewable energy sources. California has two solar access related bills which address private solar easements, subdivision design, restrictive covenants, and shading by vegetation. New Mexico has a broad legislative grant of solar rights based on water rights law. Minnesota authorized the inclusion of solar energy as a factor in local land use planning and established a private easement procedure.DOE

N80-14520# Midwest Research Inst., Golden, Colo.
IMPLEMENTATION OF STATE SOLAR INCENTIVES: A
PRELIMINARY ASSESSMENT

J. Ashworth, B. Green, P. Pollock, R. Odland, R. Saltonstall, and L. J. Perelman Jan. 1979 238 p refs

(Contract EG-77-C-01-4042) (SERI/TR-51-159) Avail: NTIS HC A11/MF A01

The implementation of official state solar energy incentives programs was investigated. Questions of incentive design and program effectiveness are addressed in certain portions of the text, but the bulk of the research effort is directed toward examining how laws and legislative mandates have been transformed into rules, regulations, eligibility criteria, standards, comprehensive land use plans, grants, tax deductions, and demonstration projects. Most of the programs discussed will be official governmental actions, although the roles of private groups, advisory councils, and universities are addressed. Programs were examined in Arizona, California, Florida, Maine, Massachusetts, Minnesota, Montana, New Mexico, and Oregon.

## N80-14521# Department of Energy, Washington, D. C. COMMERCIALIZATION STRATEGY REPORT FOR ENERGY FROM URBAN WASTES

D. Walter, S. Levy, and C. Rines [1979] 48 p (TID-28852-Draft) Avail: NTIS HC A03/MF A01

Three broad technologies are potentially available to recover energy and energy-intensive materials from urban wastes: mechanical, thermal, and biological. Worldwide experience indicates that commercialization is feasible although there are a number of technical, economic, and institutional barriers that currently limit the use of wastes. From a technical standpoint the daily variability of urban waste makes control and optimization of any process difficult. Further development and optimization of equipment is necessary to improve efficiency and reduce capital costs although there are no foreseen technological barriers and basic breakthroughs are not needed. Technical, market/economic, environmental, and institutional readiness and benefits analysis are discussed. The commercializations strategy is summarized.

N80-14522# Brookhaven National Lab., Upton, N. Y. Energy and Environment Dept.

### SOLID ELECTROLYTE FUEL CELL FOR ELECTRIC POWER GENERATION

S. Srinivasan and H. S. Isaacs 1979 10 p refs Presented at the 14th Intersoc. Energy Conversion Conf., Boston, 5-10 Aug. 1979

NTIS

(Contract EY-76-C-02-0016)

(BNL-26238; CONF-790803-29) Avail:

HC A02/MF A01

The development of high temperature fuel cells with molten carbonates or solid electrolytes are described. The advantages of solid electrolyte over the molten electrolyte fuel cells including: higher projected efficiencies; higher attainable current densities; and no cell corrosion problems are discussed. The design, fabrication, and testing of multicell stacks (5 cells) are discussed. The operating cell characteristics are examined in respect to meeting power plant performance goals.

A.W.H.

### N80-14523# Institute of Gas Technology, Chicago, III. FUEL CELL OPTION

K. F. Blurton Oct. 1978 13 p Presented at Conf. on Nat. Energy Econ. 2, Tulsa, Okla., 18-20 Sep. 1978 (Contract EM-78-C-03-1735)

(CONF-7809137-1) Avail: NTIS HC A02/MF A01

Fuel cell technology and its potential application is discussed. The strategy of fuel cell development is examined and the attributes of fuel cell power plants are described.

N80-14524# Illinois Univ., Urbana. Center for Advanced

Computation.

ENERGY CONSERVATION IN THE US ECONOMY FROM INCREASED RECYCLE OF OBSOLETE STEEL SCRAP Final Report

J. R. Brodrick Nov. 1978 110 p refs

(Contract EY-76-S-02-2893)

(COO-2893-10) Avail: NTIS HC A06/MF A01

Energy consumption in the steel industry is discussed and a recycling method is proposed for energy conservation. A model is presented to define the energy savings for the steel industry, the labor impact, and the economic factors of recycling scrap metal.

A.W.H.

N80-14525# Argonne National Lab., III.

DEFINITION AND ANALYSIS OF THE BARRIERS TO THE IMPLEMENTATION OF URBAN ENERGY RECOVERY SYSTEMS

May 1979 22 p

(Contract W-31-109-eng-38)

(ANL/CNSV/TM-2) Avail: NTIS HC A02/MF A01

Major barriers to the implementation of urban energy recovery systems and the identification of Federal programs believed to be the most effective in developing these systems are presented. A survey of 40 persons experienced in the implementation of urban energy recovery systems, which provides the results, is analyzed.

N80-14526# Los Alamos Scientific Lab., N. Mex. APPLICATIONS OF FUEL CELLS IN TRANSPORTATION B. McCormick, R. Bobbett, D. Lynn, S. Nelson (DOE, Washington, D.C.), S. Srinivasan (Brookhaven National Lab.), and J. McBreen (Brookhaven National Lab.) 1979 11 p Presented at the 14th Intersoc. Energy Conversion Conf., Boston, 5-10 Aug. 1979

(Contract W-7405-eng-36)

(LA-UR-79-628; CONF-790803-16) HC A02/MF A01

Avail: NTIS

A detailed technical and economic evaluation of potential applications for fuel cells in transportation is given. Four vehicle types were evaluated: city bus, highway bus, delivery van, and consumer car, using fuel cell and reformer data. Various fuel options and performance vs economic tradeoffs were considered and final recommendations are presented.

#### N80-14527# Sandia Labs., Albuquerque, N. Mex. Thermal aging characteristics of electrode-Posited black chrome solar coatings

R. B. Pettit and R. R. Sowell 1979 5 p refs Presented at Intern. Solar Energy Soc. Meeting, Atlanta, 28 May 1979 (Contract EY-76-C-04-0789)

(SAND-78-2094C; CONF-790541-32) Avail: NTIS HC A02/MF A01

By reducing the trivalent chromium concentration of Chromonyx black chrome plating bath, coatings with improved thermal stability characteristics were obtained. For trivalent chromium concentrations as low as 8 g/l, solar absorptance values decreased only a few percent from initial values of approximately 0.97 after heating in air at 400 C for over 3600 hours. Coating composition and structure were studied using transmission electron inicroscopy, scanning electron microscopy, and sputter Auger-profiling. Initial results indicate that the coatings from the nominal bath composition are composed of small particles, with diameters in the range 65 to 90 nm. When the trivalent chromium concentration is reduced, these particles agglomerate into larger clusters that are 150 to 250 nm in size. Upon heating in air, all coatings experience a substantial amount of oxidation, but the stable coatings maintain a significantly higher metallic chromium content.

N80-14528# California Univ., Livermore. Lawrence Livermore

#### NON-TRACKING INFLATED CYLINDRICAL SOLAR CON-CENTRATOR

J. W. Gerich 22 May 1979 18 p refs Presented at Intern. Solar Energy Soc. Meeting, Atlanta, 28 May 1979 (Contract W-7405-eng-48) (UCRL-82721; CONF-790541-12) Avail: NTIS HC A02/MF A01

A concentrating solar collector able to produce pressurized hot water up to a temperature of 175 C was developed. The collector structure consists mainly of an inflated thin film plastic cylinder that is clear on the upper portion and is an aluminized reflector on the lower portion. The reflector concentrates sunlight on a receiver tube which is jacketed with a heat transfer suppressing, thin film plastic cylinder. The first experimental collectors verified performance modeling codes. The second generation collectors now being constructed address cost considerations and ease of fabrication, installation, and maintenance. It was found that the installed cost of the inflated concentrator is likely to be one-fifth that of parabolic trough concentrators. An experimental apparatus was developed to measure the total hemispherical emittance of full size receiver tubes. Test results indicate a rather dramatic increase in the room temperature value at typical concentrator operating R.E.S. temperatures.

N80-14529# California Univ., Livermore. Lawrence Livermore

LAWRENCE LIVERMORE LABORATORY GEOTHERMAL ENERGY PROGRAM: A STATUS REPORT ON THE DEVELOPMENT OF THE TOTAL-FLOW CONCEPT M.S. Thesis

A. L. Austin and A. W. Lundberg 2 Oct. 1978 77 p refs (Contract W-7405-eng-48)

(UCRL-50046-77) Avail: NTIS HC A05/MF A01

The technology development activities of the Geothermal Energy Program at the Lawrence Livermore Laboratory are summarized. Significant progress toward development of the total-flow concept was made. The results show that the original goal of 70% engine efficiency for the total-flow impulse turbine is achievable: that a total-flow system is competitive economically with conventional systems; and that the total-flow concept offers the benefit of more efficient utilization of geothermal resources for electric power production. The evaluation of several liquid expanders designed for low-temperature (including geopressured) resources suggests that if development were continued, these expanders could be used in combination with conventional systems to increase overall system efficiency.

#### N80-14530# Argonne National Lab., III.

#### LITHIUM/METAL SULFIDE BATTERY DEVELOPMENT

R. K. Steunenberg 1979 15 p refs Presented at Fast Ion Transport in Solids-Electrode and Electrolytes Conf., Lake Geneva, Wis., 21 May 1979

(Contract W-31-109-eng-38)

(CONF-790538-10) Avail: NTIS HC A02/MF A01

Lithium/metal sulfide batteries developed for electric vehicle propulsion and for stationary energy storage applications such as load leveling are described. The battery cells consist of lithium-aluminum or lithium-silicon negative electrodes, iron sulfide (FeS or FeS2) positive electrodes, and molten LiCl-KCl electrolyte. The cells are enclosed in a thermally insulated jacket to maintain an operating temperature of 400 to 500 C. A 40 kWh electric vehicle battery consisting of 120 Li-Al/FeS cells is described.

OOE

N80-14531# Argonne National Lab., III.
ADVANCED BATTERIES FOR ELECTRIC VEHICLES: A
LOOK AT THE FUTURE

William J. Walsh 23 Apr. 1979 23 p refs Presented at the APS Meeting, Washington, D.C., 23 Apr. 1979 (Contract W-31-109-eng-38)

(CONF-790484-1) Avail: NTIS HC A02/MF A01

Battery systems which are potential candidates for electric motor vehicles are discussed. These include lead acid, nickel-iron, nickel-zinc, zinc-chlorine, lithium-metal sulfide and sodium-sulfur (ceramic electrolyte). The characteristics of these batteries are discussed. Each individual battery system is found to have less than 50% probability of successful development and commercialization; however, the cumulative probability that at least one of the batteries would be successfully developed is judged to be greater than 75%. It is predicted that the magnitude of

the market penetration of electric motor vehicles will depend on the severity of future liquid-fuel shortages along with the cost and quality of the advanced batteries.

N80-14532# Sandia Labs., Livermore, Calif.
DISSOCIATION PRESSURE MEASUREMENTS ON SALTS
PROPOSED FOR THERMOCHEMICAL ENERGY STORAGE
Robert W. Carling Jul. 1979 40 p refs
(Contract EY-76-C-04-0789)

(SAND-79-8033) Avail: NTIS HC A03/MF A01
Chemical heat pumps employ salt hydrates, ammoniates, or methanolates for energy storage. The efficient operation of a chemical heat pump depends strongly upon the reaction energies and pressure/temperature relationships of these salts. An apparatus was assembled to measure pressure/temperature relationships and derive reaction energies. A sensitive cantilever balance used to prepare salt samples in situ so that the stoichiometry of the salt hydrate, ammoniate, or methanolate is known prior to the pressure measurements is incorporated this apparatus. The apparatus is described and results on two systems are presented: MgCl2.nH2O (where n = 6.1, 6, or 4) and CaCl2.nNH3 (where n = 8, 4, 2, or 1).

N80-14533# California Univ., Berkeley. Lawrence Berkeley Lab. Earth Sciences Div.

PROCEEDINGS OF THE THERMAL ENERGY STORAGE IN AQUIFERS WORKSHOP

Dec. 1978 134 p refs Conf. held at Berkeley, Calif., 10-12 May 1978

(Contract W-7405-eng-48)

(LBL-8431; CONF-7805140) Avail: NTIS HC A07/MF A01 Contents: thermal energy storage in aquifer workshop; seasonal storage-prospects and problems; hydrogeology and reservoir engineering; energy management objectives and economics of heat storage wells; institutional aspects of utilizing heat storage in aquifers--a proposal for a prototype test; environmental aspects of low temperature thermal energy storage in aquifers; mathematical modeling of thermal energy storage in aquifers; confined aquifer experiment; thermal storage of cold water in ground water aquifers for cooling purposes: air conditioning Kennedy Airport with winter cold; high temperature underground thermal energy storage.

## N80-14534# Battelle Pacific Northwest Labs., Richland, Wash. COMPRESSED AIR ENERGY STORAGE TECHNOLOGY PROGRAM Annual Report, 1978

W. V. Loscutoff Jun. 1979 180 p refs (Contract EY-76-C-06-1830) (PNL-2935) Avail: NTIS HC A09/MF A01

Results of studies performed to establish design and stability criteria for compressed air energy storage (CAES) underground reservoirs are presented along with advanced concepts that will eliminate dependence of the CAES concept on petroleum fuels. Reservoirs examined include aquifers, hard rock caverns, and salt caverns. Equipment evaluation and development studies are cited together with feasibility studies of alternative fuels and technologies such as adiabatic systems, hybrid systems utilizing thermal energy storage and fuel, coal fired fluidized processes, and coal fired low Btu gasifiers.

N80-14536# Los Alamos Scientific Lab., N. Mex.
SUPERCONDUCTING MAGNETIC ENERGY STORAGE FOR
ELECTRIC POWER SYSTEM DYNAMIC STABILIZATION
Robert Turner 1979 7 p refs Presented at Intersoc. Energy
Conversion Conf., Boston, 5 Aug. 1979
(Contract W-7405-eng-36)

(LA-UR-79-1220; CONF-790803-07) Avail: NTIS HC A02/MF A01

A superconducting magnetic energy storage (SMES) system developed for a dynamic stabilizer to be installed in the Bonneville Power Administration (BPA) power system at Tacoma, Washington, by 1982 is described. This unit is an alternate stabilization method to the dc modulator now used to stabilize the 900 mile, ac intertie between BPA and Southern California. The SMES unit consists of a 30 MJ solenoid, a 10 MW convertor, a liquid helium dewar and auxilary systems. The SMS dynamic

stabilizer design is presented with status information about the superconducting coil, the converter, and other components of the SMES dynamic stabilizer summarized.

DOE

N80-14536# Elliott Co., Jeannette, Pa.

PRELIMINARY DESIGN OF AXIAL FLOW HYDROCARBON TURBINE/GENERATOR SET FOR GEOTHERMAL APPLICATIONS Final Report

N. A. Samurin and J. R. Shields May 1979 179 p refs Sponsored by Elec. Power Res. Inst. (EPRI-ER-513) Avail: NTIS HC A09/MF A01

The design of a 65 MW (e) gross turbine generator set in which a hydrocarbon gas mixture is used as the motive fluid is outlined. The turbine generator set is part of a geothermal binary cycle electric power plant proposed for the Heber site in the Imperial Valley, California. Aerodynamic design considerations and estimated unit performance for three hydrocarbon gas mixtures are presented. Real gas properties and equations of state are reviewed as they affect the turbine design and the thermodynamic cycle. The mechanical designs for the casing, rotor dynamics, shaft sealing and unit construction are detailed. Support systems such as the lube and seal supply system, turbine controls, etc., are reviewed. An extensive hydrocarbon turbine general specification is also included.

## N80-14537# Southern California Edison Co., Rosemead. COMMERCIAL SOLAR AUGMENTED HEAT PUMP SYSTEM

J. Wilborn Mar. 1979 79 p refs Sponsored by Elec. Power Res. Inst.

(EPRI-ER-1004) Avail: NTIS HC A05/MF A01

A solar energy augmented water source heat pump system was installed on an administration building located on the campus of the Golden West College in Huntington Beach, California. Testing began in mid-1978 and will continue for two years. Solar energy is collected from 600 square feet of solar collector panels mounted on the administration building roof. Buried tanks having a total capacity of 4,000 gallons store thermal energy. A complete and automated operation control system and instrumentation package are included. The system features flexible operation and operates in multiple modes. These modes of operation allow testing with and without solar collectors and with and without thermal storage. Solar augmentation, thermal storage, and heat pumps are to be evaluated.

## N80-14538# Sandia Labs., Albuquerque, N. Mex. DARRIEUS WIND TURBINE PROGRAM AT SANDIA LABORATORIES

P. C. Klimas 1979 12 p refs Presented at Wind Energy Innovative Sys. Conf., Colorado Springs, 23 May 1979 (Contract EY-76-C-04-0789)

(SAND-79-0997C; CONF-790501-2) HC A02/MF A01

Avail: NTIS

The design and development of vertical axis wind turbines (VAWTs) are discussed. Aerodynamic, structural, testing, and systems analyses capabilities for the development program are reported. The aerodynamic and structural characteristics of the VAWT are presented.

A.W.H.

## N80-14539# PRC Energy Analysis Co., McLean, Va. ENGINEERING CONCERNS IN SOLAR SYSTEM DESIGN AND OPERATION

James L. Easterly Mar. 1979 24 p refs (Contract EG-77-C-01-2522)

(SOLAR/0811-79/01) Avail: NTIS HC A02/MF A01

Engineering concerns associated with the startup and operation of solar heating and cooling installations are discussed. Recommendations are also made regarding the design and installation phases to help in avoiding these problems.

N80-14540# Mound Lab., Miamisburg, Ohio.
STUDIES OF DIRECTLY ABSORBING FLUIDS FOR
MID-TEMPERATURE SOLAR THERMAL APPLICATIONS
A. R. Burke, D. E. Etter, C. J. Wiedenheft, and L. J. Wittenberg1979 6 p refs Presented at Intern. Solar Energy Soc. Meeting,
Atlanta, 28 May 1979

(Contract EY-76-C-04-0053)

(MLM-2625-OP; CONF-790541-17) Avail: NTIS

HC A02/MF A01

Thermal, photochemical, and optical absorptivity studies at elevated temperatures on various heat transfer fluids containing chromophoric materials are discussed. The solar absorption efficiency of the fluids and chromophores were calculated at ambient and elevated temperatures. Density, viscosity, and heat capacity measurements for specific solutions were determined. Eight chromophoric solutions are identified as candidates for directly absorbing fluids for use up to 300 C.

N80-14541# Mound Lab., Miamisburg, Ohio.
CONSTRUCTION AND INITIAL OPERATION OF THE
MIAMISBURG SALT-GRADIENT SOLAR POND

R. S. Bryant, R. P. Bowser, and L. J. Wittenberg 1979 5 p refs Presented at the Intern. Solar Energy Soc. Meeting, Atlanta, 28 May 1979

(Contract EY-76-C-04-0053)

(MLM-2626-OP; CONF-790541-16) Avail: NTIS HC A02/MF A01

The largest salt-gradient solar pond in the U.S. occupies an area of 2020 sq mi in Ohio and was installed for only \$35/sq mi. A technique was successfully demonstrated for the formation of the gradient zone, approximately 1 m thick, in which fresh water was injected horizontally below the surface of the concentrated salt solution. Without any useful heat removed, the storage layer water, approximately 18.5% NaCl, reached a peak temperature of 51.1 C in October 1978 and a minimum temperature of 28.4 C during February 1979. The pond is predicted to deliver 281,000 kW hr/yr to be used principally for heating an outdoor swimming pool in the summer and a recreation building from October to December. The projected heat cost is 2.5 cents/kW hr, based upon amortization of 10%/yr.

N80-14542# Department of Energy, Washington, D. C. GEOTHERMAL ENERGY: PROGRAM SUMMARY Jun. 1979 316 p refs

(DOE/ET-0101) Avail: NTIS HC A14/MF A01

Descriptions of geothermal projects for the fiscal year 1978 are presented. Each summary gives the project title, contractor name, contract number, funding level, dates, location, and name of the principal investigator. Objectives and strategies for each program are provided.

N80-14543# Department of Energy, Washington, D. C.
COMMERCIALIZATION STRATEGY REPORT FOR SMALL
WIND SYSTEMS

Louis V. Divone, R. Blaunstein, J. Gros, A. K. Ingberman, W. L. R. Rice, and S. J. Taylor [1979] 46 p refs (TID-28844-Draft) Avail: NTIS HC A03/MF A01

The commercial readiness of small wind systems is addressed. Barriers to be overcome before this technology is ready to be used commercially are cited and possible actions that might be considered to remove specific barriers are identified. The full implications of the various proposed actions have not been fully developed and many actions listed undoubtedly have substantial problems associated with them.

N80-14544# Department of Energy, Washington, D. C. COMMERCIALIZATION STRATEGY REPORT FOR LARGE WIND SYSTEMS

Louis V. Divone, R. Blaunstein, J. Gros, A. K. Ingberman, W. L. R. Rice, and S. J. Taylor [1979] 41 p

(TID-28843-Draft) Avail: NTIS HC A03/MF A01

The commercialization of wind turbines is analyzed concerning technical readiness; market and economic aspects; environmental impacts; institutional acceptance; benefit analysis; and commercialization development strategy.

N80-14546# Department of Energy, Washington, D. C.
COMMERCIALIZATION STRATEGY REPORT FOR SOLAR
WATER HEATING

Frederick H. Morse and J. M. Davis [1979] 35 p refs (TID-28856-Draft) Avail: NTIS HC A03/MF A01

The commercial readiness of solar hot water heating is discussed. Some barriers to be overcome before this technology is ready to be used commercially are identified. Also identified are possible actions that might be considered to remove specific barriers. Technical, market/economics, environmental, and institutional readiness, and benefits analysis are discussed. DOE

N80-14546# Midwest Research Inst., Golden, Colo.
THERMAL ENERGY STORAGE FOR SOLAR APPLICATIONS:
AN OVERVIEW

Charles Wyman Mar. 1979 123 p refs (Contract EG-77-C-01-4042)

(SERI/TP-34-089) Avail: NTIS HC A06/MF A01

The economic role of storage for solar home heating and stand-alone electric plants are examined. Factors which affect the economics of storage are discussed. The costs and storage capacities of representative sensible and latent heat storage materials are summarized. Various modes of operation are also presented for thermal storage by reversible chemical reactions. Containers and heat exchangers are reviewed to illustrate possible approaches to reducing storage costs. Reversible reaction storage, and gas-solid reactions are shown to have desirable attributes for solar energy storage.

N80-14547# Midwest Research Inst., Golden, Colo.
A REVIEW OF THE ECONOMICS OF SELECTED PASSIVE AND HYBRID SYSTEMS

Deborah L. Buchanan Jan. 1979 27 p refs

(Contract EG-77-C-01-4042)

(SERI/TP-61-144) Avail: NTIS HC A03/MF A01

Performance and economic information on passive and hybrid systems were compiled as part of solar commercial readiness activities. The results of selected performance simulation and cost estimate studies are presented as well as actual cost and performance data from operating buildings. Systems representative of each major passive design concept are included: direct gain, indirect gain (thermal storage wall, thermal storage roof), and isolated gain (convective loop/thermosiphon, attached sunspace/greenhouse). Results are presented in tables structured by major design concept. Data for simulated and actual systems are presented separately. Comparison of individual system design specifications, performance, incremental solar cost, and cost of delivered energy are made by major design concept and by simulated or actual data source. In addition, results are aggregated to derive cost and performance ranges over all data sources, by design concept and by simulated or actual system.

N80-14548# Midwest Research Inst., Golden, Colo. COMMERCIALIZING SOLAR ARCHITECTURE

Gregory Franta Mar. 1979 38 p refs Presented at SERI Architectural Planning Seminar, Golden, Colo., 10 Jul. 1978 (Contract EG-77-C-01-4042)

(SERI/TP-62-113; CONF-780792) Avail: NTIS HC A03/MF A01

Barriers to solar technology c mmercialization through architecture are considered. Attitudes of architects, their clients, government officials, and design/construction professionals are discussed along with technical issues related to the environment, building design and construction, operation, and maintenance. Performance evaluation of solar heating and cooling of buildings (SHACOB) and the general lack of technical awareness by architects regarding non-SHACOB technologies (wind, biomass, process heat, and photovoltaic cells) are included. Institutional issues related to law and government and the solar infrastructure are identified as important. Suggestions related to information, development, acquisition, and dissemination, education and training, demonstrations and design competitions, and other actions aimed at integration of solar technology into the total energy-conscious design process are given. J.M.S.

N80-14549# California Univ., Berkeley. Lawrence Berkeley

THERMAL DEGRADATION OF A BLACK CHROME SOLAR SELECTIVE ABSORBER COATING: SHORT TERM

Carl M. Lampert May 1979 6 p refs Presented at Intern. Solar Energy Soc. Meeting, Atlanta, 28 May 1979

(Contract W-7405-eng-48) CONF-790541-37) (LBL-8857; NTIS Avail: HC A02/MF A01

The energy absorption properties and chemical microstructure of Chrom Onyx were investigated using electron microscopy and X-ray diffraction techniques. Different temperatures for short annealing times were used to evaluate the coating's temperature resistance limitations, along with possible degradation mechanisms for various stagnation situations. Samples were tested in both air and vacuum. It is concluded that for all practical considerations. black chrome optically degrades between 500 - 600 C during short exposure times.

N80-14550# Aerospace Corp., El Segundo, Calif. THE 10 MW SOLAR THERMAL PILOT PLANT DYNAMIC SIMULATION. VOLUME 1: COMPUTER PROGRAM DESCRIPTION

1 Dec. 1978 154 p refs 2 Vol. (Contract ET-78-C-03-2028)

(ATR-78(7747)-1-Vol-1) Avail: NTIS HC A08/MF A01

A digital computer simulation of a prototype solar 10 MW (electric) pilot power plant near Barstow, California is presented. The simulation program has been designated STMPPS (Solar Ten Megawatt Pilot Plant Simulation). This simulation is operative on the Control Data Corporation (CDC) 7600 digital computer, with use of the CDC SCOPE 2.1 operating system. Logic and analytical details on which the program is based are described.

N80-14551# Aerospace Corp., El Segundo, Calif. THE 10 MW SOLAR THERMAL PILOT PLANT DYNAMIC SIMULATION. VOLUME 2: COMPUTER PROGRAM SOURCE LISTING

1 Dec. 1978 271 p 2 Vol. (Contract ET-78-C-03-2028)

(ATR-78-(7747)-2-Vol-2) Avail: NTIS HC A12/MF A01

The actual computer source listing of program STMPPS is presented. All routines specifically developed to simulate the solar thermal pilot plant are included. The listing contains a generous amount of nonprogrammatic comment lines to aid in interpretation of program logic.

N80-14552# Brookhaven National Lab., Upton, N. Y. EVLAUTION OF PERFORMANCE ENHANCEMENT OF SOLAR POWERED ABSORPTION CHILLER WITH AN IMPROVED CONTROL STRATEGY USING THE BAL-BUILT HARDWARE SIMULATOR

P. C. Auh 1979 5 p refs Presented at the Intern. Solar Energy Soc. Meeting, Atlanta, 28 May 1979 (Contract EY-76-C-02-0016)

(BNL-26218; CONF-790541-21) Avail:

HC A02/MF A01 Transient and cycling performance characteristics of an advanced, solar absorption chiller were investigated. The results of the various combinations of on/off cycling runs showed that the net capacity loss during the start-up transient period could be significantly reduced when the residual cooling capacity generated during the off-period is compensated to the initial loss. Furthermore, the experimental investigation showed that the performance degradation, due to inherent transient behavior of a chiller, could be significantly improved by a simple control modification. The degree of performance under the modified control mode, as a function of the cycle period and such effects on the integrated chiller performance, were investigated. Under the modified control mode, the need of a large cold-side storage may no longer exist. This may offer significant economical advantages, especially for small residential cooling systems, without sacrifice in their performances.

N80-14553# Miami Univ., Coral Gables, Fla. Clean Energy Research Inst.

FIFTH OCEAN THERMAL ENERGY CONVERSION CONFER-ENCE, VOLUME 2, SECTIONS 4-5

A. Lavi, ed. and T. N. Veziroglu, ed. Sep. 1978 592 p refs Conf. held at Miami Beach, Fla., 20-22 Feb. 1978 (Grant EG-77-G-05-5550)

(CONF-780236-P2) Avail: NTIS HC A25/MF A01

Contents: ocean thermal energy conversion (OTEC) platform design optimization; considerations in selection of OTEC platform size and configuration; OTEC-1 early ocean test project; preliminary engineering design of an OTEC pilot plant; operational sea state and design wave criteria; OTEC platform station keeping analysis; OTEC cold water pipe design loads; dynamic loads induced by severe storms in elastic cold water pipes attached to OTEC ships by fixed and hinged connections; conceptual design of an OTEC power system using modular heat exchangers; power system module configuration using aluminum heat exchangers.

N80-14557# Sandia Labs., Albuquerque, N. Mex. HELIOS AND RECONCENTRATORS

C. N. Vittitoe, F. Biggs, L. K. Matthews, and L. O. Seamons 1979 6 p refs Presented at Intern. Solar Energy Soc. Meeting, Atlanta, 28 May 1979

(Contract EY-76-C-04-0789)

(SAND-78-1600C; CONF-790541-18) NTIS

HC A02/MF A01

The HELIOS computer code for modeling solar energy collection by reflecting systems is discussed. Extensions to HELIOS which include application to reconcentrators and to the evaluation of heliostats are described. The comparison of HELIOS predictions with image data produced by 23 heliostats and with data from a single facet, chosen partially because of exceptionally large distortion, is discussed. The method of treating reconcentrators is presented.

N80-14558# Sandia Labs., Livermore, Calif. SYSTEMS STUDIES FOR CENTRAL SOLAR THERMAL ELECTRIC

492 p Oct. 1978 refs Workshop held at Houston, Tex., 27-30 Mar. 1978

(Contracts EY-76-C-04-0789; AT(29-1)-789)

(CONF-780383) Avail: NTIS HC A21/MF A01

Twenty-one articles are presented which focus on the current technical and economic status of central receiver solar thermal electric systems and future program direction. The planning and operational differences which the electric utilities foresee solar electric will encounter are discussed. Methodologies associated with utility network planning and operation are presented. National energy models are discussed along with their implications with respect to the future of various solar electric options. R.E.S.

N80-14559# InterTechnology Corp., Warrenton, Va. PHOTOVOLTAIC POWER SYSTEMS MARKET IDENTIFICA-TION AND ANALYSIS Final Report, Jan. 1977 - Feb. 1978 May 1979 551 p refs

(Contract EG-77-C-01-4022)

(HCP/T4022-01) Avail: NTIS HC A23/MF A01

The marketing of near and intermediate term photovoltaic power applications was analyzed. The current uses of photovoltaic systems, both domestic and international, were surveyed and the usage of those systems was projected into the future. Products were defined and a market survey was carried out. A detailed scenario which forecasts sales, barriers to market acceptance. and technological innovations required for proper introduction of the products was developed. DOE

N80-14580# Electric Power Research Inst., Palo Alto, Calif. ELECTRIC UTILITY SOLAR ENERGY ACTIVITIES, 1978 W. L. York May 1979 197 p

(EPRI-ER-966-SR) Avail: NTIS HC A09/MF A01

The scope of solar energy projects sponsored by electric utilities in the United States is presented. Brief descriptions of 600 projects being conducted by 165 utility companies are given. Also included are a list of participating utilities with information contacts and addresses, a list of utilities with projects designated by category, a list of utilities organized by states, and a list of available reports on utility-sponsored projects.

N80-14561# Department of Energy, Washington, D. C. of Solar Applications Developments.

PHOTOVOLTAIC INCENTIVES OPTIONS

R. M. Terry Aug. 1978 227 p (HCP/CS-0023) Avail: NTIS HC A11/MF A01

NTIS

The options available to the Federal Government to encourage adequate growth of the solar photovoltaic industry are identified. Appropriate incentives, strategies and options (combinations of strategies) were identified by defining the policy objectives to be achieved by promoting the growth of the photovoltaic industry. Policy objectives, defined by interpreting: (1) general policy statements on energy policy and on the commercialization of new energy technologies; (2) general and specific policy statements on solar energy and on photovoltaics; and (3) specific photovoltaic program goals, are discussed. The definitions of policy objectives derived from these sources were treated as assumptions for the purpose of this study. A determination of the steps for the attainment of policy objectives is presented.

N80-14562# Argonne National Lab., III.
OVERVIEW OF THE DEPARTMENT OF ENERGY'S RE-SEARCH, DEVELOPMENT AND DEMONSTRATION PRO-GRAM FOR THE RECOVERY OF ENERGY AND MATERIALS FROM URBAN WASTE

Alan S. Cohen 1979 15 p refs Presented at the US EPA Res. Symp. on Res. on Gas and Leachate and Landfills and Resource Recovery, Orlando, Fla., Mar. 1979

(Contract W-31-109-eng-38)

(CONF-790373-1) Avail: NTIS HC A02/MF A01

Technological options available for reprocessing waste into fuels, metals, glass, paper, ammonia, glucose, fertilizer, and other energy-intensive products are discussed with emphasis on some of the approximate 80 projects comprising the Urban Waste Technology Branch's R, D, and D program. Projects are grouped as being primarily related to mechanical, thermal, or biological processes. To date, the majority of R and D funding is devoted to biological processes including anaerobic and enzymatic digestion, energy production and conservation in water and waste water treatment, and energy generation and recovery in sanitary landfills. However, demonstration activities, representing slightly less than half the program effort, are focused on the thermal/ mechanical systems. If successful, approximately 3% of the nation's energy needs could be supplied by reprocessing wastes.

N80-14563# Energy Technology Engineering Center, Canoga

#### OTEC-1 TEST CONDUCTOR PROGRAM

P. Archbold and J. O. Bates 1978 13 p Presented at Seminar on Testing Solar Energy Mater, and Systems, Washington, D.C., 22 May 1978

(Contract EY-76-C-03-0700)

(CONF-780550-9) Avail: NTIS HC A02/MF A01

The involvement of the test director contractor (TDC) in the OTEC-1 test program is outlined. The preparation for and testing of the initial test heat exchangers and auxiliary equipment are considered. Interfaces, TDC/SIC (Systems Integration Contractor) test relationship, test request, test procedures, data handling, and biofouling laboratory are discussed.

N80-14565# Sandia Labs., Albuquerque, N. Mex. HAZARDOUS PROPERTIES AND ENVIRONMENTAL EFFECTS OF MATERIALS USED IN SOLAR HEATING AND INTERIM HAND-COOLING (SHAC) TECHNOLOGIES: BOOK

J. Q. Searcy Dec. 1978 225 p refs (DOE/EV-0028) Avail: NTIS HC A11/MF A01

General background information related to SHAC systems and codes and standards are given. Materials are categorized according to their functional use in SHAC systems as follows: (1) heat transfer fluids and fluid treatment chemicals; (2) insulation materials; (3) seals and sealant materials; (4) glazing materials; (5) collector materials; and (6) storage media. The information presented includes general properties, chemical composition, thermal degradation products, and thermoxidative products of some commerical materials. Toxic properties and other potential health effects, fire hazard properties, and environmental effects of and disposal methods for SHAC materials are also presented.

N80-14566# PRC Energy Analysis Co., McLean, Va. SYSTEM TESTS AND APPLICATIONS PHOTOVOLTAIC PROGRAM

May 1979 336 p refs (Contract EG-77-C-01-4024) (HCP/T4024-01/15) Avail: NTIS HC A15/MF A01

Progress in developing photovoltaic solar energy conversion systems to reduce dependence on fossil fuels is summarized. Exhibits designed to acquaint the general public to photovoltaics are included along with component field tests conducted to monitor module reliability under actual environmental conditions. Major test facilities are described.

N80-14567# Department of Energy, Washington, D. C. ENERGY POLICY AND CONSERVATION ACT (PUBLIC LAW) 94-163) AS AMENDED BY THE NATIONAL ENERGY CONSERVATION POLICY ACT (PUBLIC LAW 95-619). TITLE 10: ENERGY. CHAPTER 2: DEPARTMENT OF ENERGY. SUBCHAPTER D: ENERGY CONSERVATION. PART 430: ENERGY CONSERVATION PROGRAM FOR CONSUMER **PRODUCTS** 

1979 19 p

(DOE/CS-0056) Avail: NTIS HC A02/MF A01

The text of Part B, Energy Conservation Program for Consumer Products Other Than Automobiles, from Energy Policy and Conservation Act as amended by National Energy Conservation Policy Act (PL-619) is presented. The text includes the following subjects: coverage, test procedures, labeling, energy efficiency standards, requirements of manufacturers, effect on other law, rules, authority to obtain information, exports, imports, prohibited acts, enforcement, injunctive enforcement, citizen suits, administrative procedure and judicial review, consumer education, annual report, and authorization of appropriations.

N80-14568# Colorado State Univ., Fort Collins. Solar Energy Applications Lab.

PERFORMANCE OF RESIDENTIAL SOLAR HEATING AND COOLING SYSTEM WITH FLAT-PLATE AND EVACUATED TUBULAR COLLECTORS: CSU SOLAR HOUSE 1

W. S. Duff, T. M. Conway, G. O. G. Loef, D. B. Meredith, and R. B. Pratt 1978 8 p refs Presented at Meeting of the Am. Section of the Intern. Solar Energy Soc., Denver, 28 Aug. 1978 (Contract EY-76-S-02-2577)

(COO-2577-16; CONF-780808-24) NTIS HC A02/MF A01

Measurements in Solar House One at Colorado State University provided comparison data on space heating, water heating, and cooling by systems in which flat plate collectors and evacuated tube collectors were used. Data were procured on 47 days during operation of the flat plate collector and on 112 days when the house was heated or cooled by the evacuated tube collector system. It is concluded that the system comprising an evacuated tubular collector, lithium bromide absorption water chiller, and associated equipment is highly effective in providing solar heating and cooling to a small building, that it can supply up to twice the space heating and several times the cooling obtainable from an equal occupied area of good quality flat-plate collectors, and that a greater fraction of the domestic hot water can be obtained by supplying its heat from main storage. DOE

N80-14569# Colorado State Univ., Fort Collins. Solar Energy Applications Lab.

#### REALISTIC SIZING OF RESIDENTIAL SOLAR HEATING AND COOLING SYSTEMS

D. S. Ward 1978 10 p refs Presented at Meeting of the Am. Section of the Intern. Solar Energy Soc., Denver, 28 Aug.

(Contract EY-76-S-02-2858)

CONF-780808-23) NTIS (COO-2858-14: Avail. HC A02/MF A01

The accuracy of technical and economic sizing methods for solar heating and cooling systems in specific installations is demonstrated to be strongly dependent upon the accuracy of the input data. Variations in the solar radiation data due to the inherent errors in previous solar measurements, and the difficulty in calculating heating and cooling loads to a desired level of accuracy are shown to result in calculated fractions of the load, f, of values with 10 to 15% errors. For specific installations where the heating load was calculated (and not measured experimentally), the fraction of the load carried by solar could therefore, be calculated to only one significant figure. Similarly,

the inability to accurately predict inflation rates and certain other costs of the life cycle of a solar system, in addition to errors in the calculated heating load and fraction of the load, f, were shown to reduce the accuracy of economic costs of a solar system to values of + or - 25%.

N80-14570# Mound Lab., Miamisburg, Ohio.

**EVALUATION OF FUEL RESOURCES AND REQUIREMENTS** FOR THE MAGNETIC FUSION ENERGY PROGRAM

T. B. Rhinehammer and L. J. Wittenberg 31 Oct. 1978 106 p

(Contract EY-76-C-04-0053)

(MLM-2419) Avail: NTIS HC A06/MF A01

The potential tritium requirements in the presently formulated development plan were assessed and possible sources for the required tritium were identified. The availability of lithium was surveyed also because the only practical production method for tritium is the neutron irradiation of lithium. The estimates of world-wide resources of lithium available to supply such an industry are reviewed. Additionally, the isotopic separation techniques for lithium-6 enrichment are discussed. The resources and requirements for mercury are included because of its potential use in a lithium isotopic separation technique. The availability of helium-3 and helium-4 is briefly discussed.

N80-14571# California Univ., Livermore. Lawrence Livermore

PROCESS DESIGN AND ECONOMIC ANALYSIS OF THE ZINC SELENIDE THERMOCHEMICAL HYDROGEN CYCLE H. H. Otsuki and O. H. Krikorian 6 Sep. 1978 35 p refs (Contract W-7405-eng-48)

(UCRL-52546) Avail: NTIS HC A03/MF A01

A detailed preliminary design for a hydrogen production plant was developed based on an improved version of the ZnSe thermochemical cycle for decomposing water. In the latest version of the cycle, ZnCl2 is converted directly to ZnO through high temperature steam hydrolysis. This eliminates the need for first converting ZnCl2 to ZnSO4 and also slightly reduces the overall heat requirement. The ZnSe cycle is driven by a very high temperature nuclear reactor (VHTR) that provides a high temperature (1283 K) helium working gas for process heat and power. The plant is sized to produce 27.3 Mg/Hs/h and requires specially designed equipment to perform the critical reaction steps in the cycle. Conceptual designs were developed for several of the important process steps to make cost estimates. A cycle efficiency of about 40% and a hydrogen production cost of about \$14/GJ were obtained.

N80-14572# Jet Propulsion Lab., California Inst. of Tech., Pasadena

#### PROCEEDINGS OF THE DOE CHEMICAL/HYDROGEN **ENERGY CONTRACTOR REVIEW SYSTEMS**

Aug. 1978 380 p refs Presented at DOE Ann. Chem. Energy Storage and Hydrogen Energy System Contracts Rev., Baltimore, 16 Nov., 1977

(Contract EC-77-A-31-1035)

(CONF-771131) Avail: NTIS HC A17/MF A01

Chemical/hydrogen energy system contracts were reviewed. The review served as an effective means to (1) give all contracts an insight into the background and objectives of thirty-nine hydrogen-related tasks, (2) show the status of the studies or technical effort, (3) relate any problems that had impeded the progress, and (4) state projected solutions for resolving the identified problems.

N80-14573# Argonne National Lab., III. REVIEW OF INDUSTRIAL PARTICIPATION ON THE ANL LITHIUM/IRON SULFIDE BATTERY DEVELOPMENT **PROGRAM** 

E. C. Gay, W. E. Miller, and R. F. Malecha 1978 30 p refs Presented at 13th IECEC Conf. of the Soc. of Automotive Engr., Detroit, 20-25 Aug. 1978

(Contract W-31-109-eng-38) (CONF-780852-1) Avail: NTIS HC A03/MF A01

The development and fabrication of industrial cells is reviewed. Industrial cells that contained FeS2 in the positive electrode achieved a specific energy of 100 Wh/kg at a 4 hr discharge rate and a peak power of 100 W/kg. Some of these cells showed good performance for up to 300 deep discharge cycles. Industrial cells that contained FeS in the positive electrode maintained good performance through 1000 deep discharge cycles. Present cell development efforts are directed toward improving specific energy and power in the cells that contain FeS and improving cycle life in cells that contain FeS2.

N80-14574# Solar Energy Information Services, San Mateo.

NTIS

NTIS

ENGINEERS GUIDE TO SOLAR ENERGY

Yvonne Howell and Justin A. Bereny Feb. 1979 328 p (PB-297043/2: SEIS-79/1: ISBN-0-930978-04-8; LC-78-62956) Copyright. HC \$28.00/MF \$28.00 CSCL 13A

Information on solar heating technology is presented. The following subjects are covered: (1) an overview of the six basic solar technologies; (2) a comprehensive discussion of the solar resource, including a compendium of worldwide solar radiation data; (3) an introduction to passive solar technology; (4) extensive discussion of active solar systems, including applications for heating swimming pools, domestic hot water, and space heating; (5) methodology for calculating building heat loss and gain. including worldwide design temperature data; (6) an introduction to solar systems sizing through utilization of the f-chart method, including examples and worksheets; (7) a solar heating product directory divided into four sections: collectors, controls, pumps, and storage.

N80-14575# General Accounting Office, Washington, D. C. Energy and Minerals Div.

COMMERCIALIZING SOLAR HEATING: A NATIONAL STRATEGY NEEDED Report to the Congress

20 Jul. 1979 86 p refs (PB-297882/3; EMD-79-19) Avail: NTIS HC A05/MF A01

The adequacy of the Nation's efforts to commercialize solar heating systems is discussed. Constraints facing the use of solar heating systems, the effectiveness of ongoing efforts to overcome these constraints, and the potential effectiveness of the National Energy Act in encouraging the use of solar heating systems are covered. GRA

N80-14576# Massachusetts Inst. of Tech., Cambridge. Marine Industry Advisory Services.

WAVE POWER SYSTEMS

CSCL 13A

Norman Doelling 1 Jul. 1979 33 p refs (PB-299851/6; MITSG-79/16; NOAA-79080910; Opportunity-Brief-15) Avail: NTIS HC A03/MF A01 CSCL 10A

Ocean wave power was investigated as a usable, renewable, alternative energy source. The results suggest that both Salter cams and Cockerell rafts can be designed to convert wave motion to relative mechanical motion and mechanical forces. Mooring problems and costs suggest that Salter cams will be much more expensive than Cockerell rafts. A major problem is converting the available mechanical power to a more useful form, i.e., hydraulic or electric power. Upper limits on the amount of power that can be extracted from waves were investigated along with lower cost bounds.

N80-14577# Ohio State Univ., Columbus. Solar Energy Lab. OHIO EXPOSITION CENTER SOLAR HOME PROJECT Final **Progress Report** 

R. V. DeVore, P. D. McWane, and D. L. Wineland 1979 186 p refs 15 Jun. (PB-298541/4;

OSU-SEL-5-510X) HC A09/MF A01 CSCL 13A

The operation of an active liquid-based 615 square foot solar collector array installed on a 2200 square foot residence is reported. Data are presented for the four solar energy utilization subsystems: domestic hot water, direct solar heating, LiBr water absorption air conditioner, and solar-assisted heat pump. Daily insolation records are included for a one year period. GRA

NTIS

N80-14578# Applied Physics Lab., Johns Hopkins Univ., Laurel, Md.

GEOTHERMAL ENERGY MARKET STUDY ON THE ATLANTIC COASTAL PLAIN. ECONOMIC EVALUATION MODEL FOR DIRECT USE OF MODERATE TEMPERATURE, UP TO 250 F, GEOTHERMAL RESOURCES IN THE NORTHERN ATLANTIC COASTAL PLAIN

Richard Weissbrod (Johns Hopkins Univ., Baltimore, Md.), William Barron (Johns Hopkins Univ., Baltimore, Md.), Peter Kroll (Johns Hopkins Univ., Baltimore, Md.), and William J. Toth Jun. 1979

(Contract EX-76-A-36-1008)

(PB-298785/7; APL/JHU/GEMS-003; APL/JHU/QM-79-002)

Avail: NTIS HC A04/MF A01 CSCL 13A

The Geothermal Resource Economic Evaluation System developed to calculate the average cost per million Btu of geothermal energy that is delivered either to residential and commercial users through a community heating system or to industrial process heat users is examined. The basic assumptions and the methods used in the model are presented. Results of the current studies indicate that, under a number of market conditions, i.e., for high-density residential housing or for large industrial users, and for a large range of resource conditions, geothermal energy costs are well below the costs of electrical space heating.

#### N80-14584# Los Alamos Scientific Lab., N. Mex. ENVIRONMENTAL OPTIONS FOR COAL USE

J. R. Bartlit 1979 13 p refs Presented at Energy and Environ. Technol. Training Conf., Tsaile, Ariz., 29 May 1979 (Contract W-7405-eng-36)

NTIS (LA-UR-79-1393; CONF-790550-1) Avail: HC A02/MF A01

The options for coal development are described and their environmental impacts discussed. The various options for better or worse air pollution controls are discussed including the legal options available for requiring the better (cleaner) levels of control if those are desired. DOF

N80-14587# Princeton Univ., N. J. Guggenheim Labs. for the Aerospace Propulsion Sciences.

FUNDAMENTAL AND SEMI-GLOBAL KINETIC MECHA-NISMS OF HYDROCARBON COMBUSTION Annual Report, 1 Oct. 1977 - 30 Sep. 1978

F. L. Dryer and I. Glassman 1 Dec. 1978 30 p refs (Contract EC-77-S-02-4372)

(COO-4272-3) Avail: NTIS HC A03/MF A01

The development of simplified chemical kinetic models to represent combustion chemistry is discussed. Studies of paraffin, olefin, and alcohol hydrocarbons are reviewed. Appropriate global models are presented and compared with experimental data. The results clearly demonstrate that the turbulent flow reactor facility can be used to develop accurate global models for a variety of important fuels.

N80-14590# Air Pollution Technology, Inc., San Diego, Calif. EFFECTS OF CONDITIONING AGENTS ON EMISSIONS FROM COAL-FIRED BOILERS: TEST REPORT NO. 1 Final Report, Jan. - Apr. 1978

R. G. Patterson, P. Riersgard, R. Parker, and S. Calvert Apr. 1979 72 p refs 2 Vol.

(Contract EPA-68-02-2628; EPA Proj. EHE624A)

(PB-299191/7: EPA-600/7-79-104A) Avail: NTIS

HC A04/MF A01 CSCL 13B

A field performance test of an electrostatic precipitator (ESP) which uses SO3 as the conditioning agent was conducted. The ESP was at an electric utility power plant burning approximately 1% sulfur coal. The ESP performance was characterized in terms of particle collection efficiency and the chemical composition of particulate and gaseous emissions. Fly ash resistivity and dust opacity were also measured. Results show an average increase in overall efficiency from 80% to 95% with injection of the SO3. This is accompanied by a decrease in fly ash resistivity, a decrease in opacity, and an increase in SO3 concentration entering and leaving the ESP. Approximately 80% of the injected SO3 escaped GRA the ESP.

N80-14591# Air Pollution Technology, Inc., San Diego, Calif. EFFECTS OF CONDITIONING AGENTS ON EMISSIONS FROM COAL-FIRED BOILERS: TEST REPORT NO. 2 Final Report, Apr. - Jul. 1978

R. G. Patterson, J. Long, R. Parker, and S. Calvert Apr. 1979 59 p 2 Vol.

(Contract EPA-68-02-2628; EPA Proj. EHE624A)

(PB-299192/5; EPA-600/7-79-104B) Avail: HC A04/MF A01 CSCL 13B

A field performance test of an electrostatic precipitator (ESP) which uses LPA 445 and LAC 51B flue gas conditioning agents was performed. The ESP is at an electric utility power plant burning approximately 1% to 2% sulfur coal. The ESP performance was characterized in terms of particle collection efficiency, chemical composition of particulate and gaseous emissions, fly ash resistivity, and dust opacity. Measurements show that there was no significant change in overall efficiency (99.6%) between the conditioned and unconditioned tests. There was some evidence that the conditioning agents reduced entrainment during electrode rapping and possibly improved the fractional efficiency slightly for particles smaller than about 5 micrometers in diameter.

#### N80-14595# Battelle Columbus Labs., Ohio. ENVIRONMENTAL ASSESSMENT OF THE FLUIDIZED-BED COMBUSTION OF COAL: METHODOLOGY AND INITIAL RESULTS

Keshava S. Murthy, Herman Nack, and D. Bruce Henschel (EPA) 1978 10 p refs Repr. from J. of Air Pollution Control Assoc., v. 28, no. 3, Mar. 1978 p 213-220 Presented at 70th Ann. APCA Meeting, Toronto, Jun. 1977 Revised Prepared in cooperation with Ind. Environ. Res. Lab. (Contract EPA-68-02-2138)

(PB-298473/0; EPA-600/J-78-111; Paper-77-26.6-Rev) Avail: NTIS HC A02/MF A01 CSCL 13B

A program being conducted by the U.S. Environmental Protection Agency (EPA), aimed at complete environmental assessment (EA) of the fluidized-bed combustion (FBC) of coal is discussed. It reviews the EA methodology being developed by EPA: (1) identification of current technology and environmental background, including development of a list of the universe of potential pollutants; (2) development of environmental objectives via the Multimedia Environmental Goals chart; (3) comprehensive analysis of emissions from operating FBC systems; (4) assessment of existing control technology analysis of environmental control alternatives, using a Source Analysis Model approach; and (5) identification of further data and technology.

#### N80-14617# Midwest Research Inst., Golden, Colo. INSOLATION MODELS, DATA AND ALGORITHMS Annual Report, 1978

R. L. Hulstrom Dec. 1978 83 p refs (Contract EG-77-C-01-4042)

(SERI/TR-36-110) Avail: NTIS HC A05/MF A01

Operational computer models for thermal (broadband) and spectral insolation were developed along with a data base (SOLMET) for the U.S. geographical distribution of thermal insolation. Preliminary research measurements of the thermal insolation on tilted surfaces were performed and a complete design concept of advanced instrumentation to measure automatically the insolation on 37 tilted surfaces at various DOE orientations was developed.

#### N80-14655# Marlatt and Associates, Fort Collins, Colo. ASSESSMENT OF THE APPLICABILITY OF THE NATIONAL FIRE WEATHER DATA LIBRARY TO WIND ENERGY **ANALYSES Final Report**

W. E. Marlatt, P. Tierney, P. Meilke, M. Baer, and J. Childs May 1979 115 p refs (Contract EY-76-C-06-1830)

individual stations and screen summaries for common windy areas,

(PNL-2538) Avail: NTIS HC A06/MF A01

A program to review the fire weather library for stations with usable records, develop statistical summaries for selected

develop statistical comparisons of fire weather stations with nonfire weather stations having multiple observations per day, develop frequency spectra of wind periods above threshold values, and estimate seasonal and geographic distributions of wind energy is described. The use of the data from the program for selection of sites with wind characteristics favorable for maximizing the wind energy potential is discussed.

N80-14894# Department of Energy, Washington, D. C. Div of Nuclear Power Development.

#### **NUCLEAR POWER PROGRAM INFORMATION AND DATA:** UPDATE, MARCH - APRIL 1979

1979 153 p refs (DOE/TIC-10119) Avail: NTIS HC A08/MF A01

Information on nuclear power development, nuclear power plant construction, and nuclear power plant operation is presented. The economics of nuclear power and the fuel requirements and performance of nuclear generating units are discussed. The NRC review of the Three Mile Island accident is presented.

N80-14922\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

### EFFECT OF VELOCITY OVERSHOOT ON THE PERFORM-ANCE OF MAGNETOHYDRODYNAMIC SUBSONIC DIFFUS-

Mahesh S. Greywall (Wichita State Univ.) and J. Marlin Smith 1980 10 p refs Presented at Aerospace Sci. Meeting, Pasadena, Calif., 14-16 Jan. 1980; Sponsored by AIAA (Contract EF-77-A-01-2674)

(NASA-TM-79305; DOE/NASA/2674-79/8; E-257) Avail: NTIS HC A02/MF A01 CSCL 201

The evolution of an overshoot velocity distribution was studied in a plane two dimensional diffuser as a function of diffuser divergence angle. The diffuser performance for velocity overshoot was compared to that for a fully developed inlet velocity profile. Results indicate that the ratio of peak-to-center line velocity increases along the diffuser for a diffuser half angle greater than some critical value. It was also found that irrespective of the accompanying inlet temperature distribution, the wall shear stress and the wall heat flux is substantially larger when the inlet velocity profile has an overshoot than that for a fully developed inlet velocity profile.

#### N80-14954# Argonne National Lab., III. DISTRIBUTION AND CLASSIFICATION OF LOCAL SOCIO-**ECONOMIC IMPACTS FROM ENERGY DEVELOPMENT**

D. J. Santini and D. W. South 1979 20 p refs Presented at the 2nd Ann. Conf. on the Small City and Regional Community, Stevens Point, Wis., 15 Apr. 1979

(Contract W-31-109-eng-38) (CONF-790481-1) Avail: NTIS HC A02/MF A01

Present and proposed energy facility siting patterns are examined and their socio-economic impact is assessed. Results show that: (1) new electric capacity will shift from oil and gas to coal and nuclear fuels; (2) coal and nuclear plants require more labor per megawatt than oil and gas plants; (3) coal and nuclear plants are larger than gas or oil plants; (4) new coal and nuclear plants will be larger than such existing plants; (5) among regions, greater shares of energy production will occur in those regions less able to assimilate employment growth; and (6) within regions, greater shares of energy production will occur in counties less able to assimilate employment growth. These results clearly demonstrate that socio-economic impact from energy development will be greater in the future than in the past.

N80-14962# Arizona Univ., Tucson. Office of Arid Lands Studies.

#### WEST COAST FORUM ON APPROPRIATE TECHNOLOGY **Final Report**

Kennith E. Foster, Roger L. Caldwell, Terry Triffet, and Lina K. Robinson Feb. 1979 56 p Forum held at Tucson, Ariz., 21 Sep. 1978

(Contract NSF CISP-78-22989) (PB-298986/1; NSF/RA-790003) -

HC A04/MF A01 CSCL 05A

NTIS

Scientific research support to promote successful performance of appropriate technology (AT) projects is considered including the provision of a scientific educational base as well as an understanding of the societal and economic impacts related to the adoption of AT. Some of the predominant topic areas identified for research include alternative energy sources, small-scale urban organic agriculture technology, alternative waste disposal systems, and water conservation technology.

#### N80-14972# Department of Energy, Washington, D. C. COMMERCIALIZATION STRATEGY REPORT FOR ELECTRIC AND HYBRID VEHICLES

P. Brown, P. Davis, G. Hagey, and M. Katz [1979] 91 p (TID-28858-Draft) Avail: NTIS HC A05/MF A01

Barriers to the commercialization of electric powered vehicle technology are identified, along with possible actions to remove specific barriers. Technical, economic, environmental, and institutional readiness are assessed. Recommended commercialization strategies and goals are presented.

N80-14973# California Univ., Livermore. Lawrence Livermore Lab

#### ASSESSMENT OF THE APPLICABILITY OF MECHANICAL ENERGY STORAGE DEVICES TO ELECTRIC AND HYBRID VEHICLES. VOLUME 1: EXECUTIVE SUMMARY M.S. Thesis

M. W. Schwartz 1 May 1979 17 p refs (Contract W-7405-eng-48)

(UCRL-52773-Vol-1) Avail: NTIS HC A02/MF A01

The power and energy required in a storage device to realize specific improvements upon current and near-term electric vehicle performance specifications are calculated. A review of candidate mechanical energy storage devices concludes that only flywheels and, for some applications, hydraulic accumulators are practical in this context. With respect to each performance specification, data is presented on the vehicle-mass fraction of the mechanical energy storage system as a function of its specific energy and the overall vehicle mass. Mechanical energy storage devices may or may not improve range, depending on the particular configuration of the vehicle and the driving cycle.

N80-14976# Department of Energy, Bartlesville, Okla. Bartlesville Energy Research Center.

#### AMBIENT TEMPERATURE, FUEL ECONOMY, EMISSIONS, AND TRIP LENGTH Final Report, Feb. - Sep. 1977

B. H. Eccleston Aug. 1979 123 p (Contract DOT-TSC-RA-76-48)

(PB-298847/5; DOT-TSC-NHTSA-79-43; DOT-HS-803-668) Avail: NTIS HC A06/MF A01 CSCL 13F

The relationship among automotive fuel economy, ambient temperature, cold start trip length, and drive-train component temperatures of four 1977 vehicles is examined. Fuel economy, exhaust emission, and drive-train temperatures were measured at temperatures of 20 F, 45 F, 70 F, and 100 F using the 1975 Federal Test Procedure and EPA highway fuel economy test.

N80-15133\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

#### IMPACT OF NEW INSTRUMENTATION ON ADVANCED TURBINE RESEARCH

Robert W. Graham Mar. 1980 25 p refs Proposed for presentation at the 1980 Spring Ann. Meeting, New Orleans, 5-13 Mar. 1980; sponsored by ASME

(NASA-TM-79301; E-251) Avail: NTIS HC A02/MF A01 CSCL 21F

A description is presented of an orderly test program that progresses from the simplest stationary geometry to the more complex, three dimensional, rotating turbine stage. The instrumentation requirements for this evolution of testing are described.

NTIS

The heat transfer instrumentation is emphasized. Recent progress made in devising new measurement techniques has greatly improved the development and confirmation of more accurate analytical methods for the prediction of turbine performance and heat transfer. However, there remain challenging requirements for novel measurement techniques that could advance the future research to be done in rotating blade rows of turbomachines.

M.M.M.

N80-15195\*# Boeing Aerospace Co., Seattle, Wash.
SOLAR POWER SATELLITE SYSTEM DEFINITION STUDY.
VOLUME 1: EXECUTIVE SUMMARY

Nov. 1979 39 p. Prepared in cooperation with General Elec. Co., Fairfield, Conn.; Grumman Aerospace Corp., N. Y.; Little (Arthur D.), Inc., Cambridge, Mass.; TRW, Inc., Cleveland, Ohio; Brown and Root, Inc., Houston, Tex.

(Contract NAS9-15636)

(NASA-CR-160442; D180-25461-1) Avail: NTIS

HC A03/MF A01 CSCL 11B

Configuration concepts, option sizes, and systems definitions study design evolutions are reviewed. The main features of the present reference design silicon solar cell solar power satellite are described, as well as the provisions for space construction and support systems. The principal study accomplishments and conclusions are summarized according to the following tasks: (1) baseline critique; (2) construction and maintenance; (3) industrial complex needs, cost estimates, and production capacity; (4) launch complex requirements at KSC or at an offshore facility; (5) integration of the SPS/ground power network; (6) technology advancement and development; (7) costs and schedules; and (8) exploratory technology: laser annealing of solar cells degraded by proton irradiation, and a fiber-optic phase distribution link at 980 MHz.

A.R.H.

N80-15204\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

ANALYSIS OF GAAS AND SI SOLAR CELL ARRAYS FOR EARTH ORBITAL AND ORBIT TRANSFER MISSIONS

Kent D. Jeffries 1980 9 p refs Presented at 14th Photovoltaic Specialists Conf., San Diego, Calif., 7-10 Jan. 1980; sponsored by IEEE

(NASA-TM-81383; E-291) Avail: NTIS HC A02/MF A01 CSCL

Silicon and gallium arsenide arrays were studied and compared for low earth orbit (LE), geosynchronous orbit (GEO), and LEO to GEO electric propulsion orbit transfer missions. The sensitivities of total cost to parameters such as mission duration, array cost, cover glass thickness, and concentration ratio were determined along with cost tradeoffs between silicon and gallium arsenide arrays for selected mission classes. Results indicate that development of the technology for low cost, light weight concentrators should be increased and that cost reduction efforts for gallium arsenide cells be pursued.

R.C.T.

## N80-15220# Department of Energy, Washington, D. C. ANALYSIS OF HYDROGEN IN SOLIDS

R. L. Schowebel, ed. and J. L. Warren, ed. Apr. 1979 181 p refs. Presented at the Workshop on Analysis of Hydrogen in Solids, Albuquerque, N. Mex., 23 Jan. 1979

(Contract DE-AC04-76DP-00789)

(DOE/ER-0026; CONF-790127) Avail: NTIS

HC A09/MF A01

The ways to determine the state and dynamics of hydrogen in solids are presented and requirements are formulated for techniques in this capacity. Topics include: the properties of hydrogen in insulating materials; ion channeling studies of hydrogen lattice location; hydrogen depth profiling using elastic recoil detection; and neutron scattering as a technique for the study of hydrogen in metals.

N80-15227# Brookhaven National Lab., Upton, N. Y. HIGH TEMPERATURE ELECTROLYSIS

J. R. Powell 1978 6 p refs Presented at the Am. Nucl. Soc. Meeting, San Francisco, 12 Nov. 1979 (Contract EY-76-C-02-0016)

(BNL-26331; CONF-791103-16)

Avail:

HC A02/MF A01

An idealized flowsheet for a high temperature electrolysis fusion synthetic fuel plant is given. Two blanket module types are indicated: the first type heats steam or CO2 to high temperatures for the HTE cells (T > or = 1000 C) while the second heats a working fluid for an electrical power cycle and breeds tritium.

N80-15259# Argonne National Lab., III.

LONG-TERM EROSION MONITORING OF METALLIC CONDUITS BY ULTRASONIC PULSE-ECHO TECHNIQUES C. A. Youngsdahl and W. A. Ellingson 1979 11 p refs Presented at 12th Symp. on Nondestructive Evaluation, San Antonio, Tex., 24 Apr. 1979

(Contract W-31-109-eng-38)

(CONF-790480-1) Avail: NTIS HC A02/MF A01

Monitoring metallic transfer lines and fittings in pressurized equipment used to process particulate matter, such as pulverized coal or ash, can prevent unexpected component failures and contribute to improved equipment designs. Nondestructive, ultrasonic pulse-echo techniques to detect erosion were developed for high-temperature (approximately 650 C) on-line measurements and applied to various stainless steel and carbon steel components of coal-gasification and liquefaction pilot plants. The techniques are described, together with successful methods of accounting for varying specimen temperatures, long monitoring times (months to years), and exposure of transducers and couplant to weather. Measurement characteristics peculiar to erosion monitoring are discussed.

N80-15263\*# General Electric Co., Philadelphia, Pa. Space Sciences Lab.

#### SINTERED SILICON NITRODE RECUPERATOR FABRICA-TION Final Report

A. Gatti, W. S. Chiu, and L. R. McCreight  $\,$  Jan. 1980  $\,$  40 p refs

(Contract DEN3-54)

(NASA-CR-159706: DOE/NASA/0054-79/1) Avail: NTIS HC A03/MF A01 CSCL 11B

The preliminary design anp a demonstration of the feasibility of fabricating submodules of an automotive Stirling engine recuperator for waste heat recovery at 370 C are described. Sinterable silicon nitride (Sialon) tubing and plates were fabricated by extrusion and hydrostatic pressing, respectively, suitable for demonstrating a potential method of constructing ceramic recuperator-type heat exchangers. These components were fired in nitrogen atmosphere to 1800 C without significant scale formation so that they can be used in the as-fired condition. A refractory glass composition (Al2O3 x 4.5 CaO.MgO x 11SiO2) was used to join and seal component parts by a brazing technique which formed strong recuperator submodules capable of withstanding repeated thermal cycling to 1370 C. The corrosion resistance of these materials to Na2SO4 + NaCl carbon mixtures was also assessed in atmospheres of air, hydrogen and CO2-N2-H2O mixtures at both 870 C and 1370 C for times to 1000 hours. No significant reaction was observed under any of these test conditions.

N80-15275# National Bureau of Standards, Washington, D.C. MEASUREMENTS AND STANDARDS FOR RECYCLED OIL - 2

Donald A. Becker, ed. and Helen Anne Hurd Sep. 1979 218 p refs Presented at NBS Conf., Gaithersburg, Md., 29-30 Nov. 1977

(PB-299951/4: NBS-SP-556: LC-79-600126) Avail: NTIS HC A10/MF A01 CSCL 11H

Progress in the development of measurement methods and test procedures, as well as standards, for recycled oil is reported. Areas of legislation which affect the recycled oil program are discussed along with environmental issues. Other topics covered include oil recycled as engine oils, nonlubricating end uses, and additional recycled oil activities.

N80-15276# SRI International Corp., Menlo Park, Calif. MISSION ANALYSIS FOR THE FEDERAL FUELS FROM BIOMASS PROGRAM. VOLUME 3: FEEDSTOCK AVAIL-ABILITY Final Report

R. K. Ernest, R. H. Hamilton, N. S. Borgeson, F. A. Schooley, and R. L. Dickenson Jan. 1979 79 p refs (Contract EY-76-C-03-0115)

(SAN-0115-T1) Avail: NTIS HC A05/MF A01

The biomass supply in the United States is estimated through the year 2020. The biomass supply represents the combined tonnages of agricultural, logging, and mill residues, other forest residues, and energy crop output. Two scenarios were used for the projections: a base case and an optimistic case reflecting increases in land and water availability for production of energy crofs resulting from an array of government incentives. An appendix tabulates the feedstock availability by region, type, price, year, and scenario.

N80-15277# Puerto Rico Scientific Research Lab., Inc., Rio Piedras. Agricultural Experiment Station.

PRODUCTION OF SUGARCANE AND TROPICAL GRASSES AS A RENEWABLE ENERGY SOURCE Quarterly Report, 1978 - 1979

A. G. Alexander, M. Garcia, C. Gonzalex-Molina, and J. Ortez-Velez 1979 62 p refs

(Contract ET-78-S-05-5912)

(DOE/CS/5912-T1; QR-2) Avail: NTIS HC A04/MF A01

Candidate grasses were identified for short-rotation crops having potentially greater versatility than Sordan 70A. Field-plot studies were performed on the optimization of N-fertilization and seeding rates for Sordan 70A. Field-plot data were recorded on sugarcane and napier grass responses to harvest frequency and row spacing. These results underscore a superiority of first-ration yields over plant-crop yields, of napier grass over sugarcane (up to 4 months), and delayed harvests over frequent harvests. Breeding tests were successful in producing F1 seedlings from crosses between an unknown and early-tasseling wild S. Spontaneum hybrid and late-tasseling commercial sugarcane hybrids.

### N80-15278# Institute of Gas Technology, Chicago, III. LNG INDUSTRY: AN OVERVIEW OF PROJECTS AND

J. Glenn Seay, Philip J. Anderson, and Edward J. Daniels 1978 29 p Presented at ASME Energy Tech. Conf., Houston, Tex., 5 Nov. 1978

(Contract EE-76-C-02-4234)

(CONF-7811112-2) Avail: NTIS HC A03/MF A01

A summary of the LNG projects that are currently in various stages of development is presented. These projects account for a potential international LNG trade of about 765 million cu m (27 billion CF) per day. The operating experiences of some of the currently operational projects are reviewed with an emphasis on the natural gas liquefaction facilities.

N80-15279# Department of Energy, Washington, D. C. Office of Conservation and Solar Applications.

PROJECT PLANNING DOCUMENT: HIGHWAY VEHICLE ALTERNATIVE FUELS UTILIZATION PROGRAM (AFUP) Jul. 1979 66 p

(DOE/CS-0093) Avail: NTIS HC A04/MF A01

Criteria and guidelines for the evaluation and development of nonpetroleum based highway vehicle fuels derived from domestic resources are developed. Five basic classes of alternative fuels are presented. Within each class, general areas of R & D that were addressed are illustrated in terms of a matrix format, while specific project relationships are identified by a corresponding flow chart. An overview of the evaluation of and relationships between these several alternative fuels classes intended to progress toward a uniform and independent domestic highway transportation system is presented. The mechanism for implementation is outlined. DOF

N80-15280# Department of Energy, Washington, D. C. ETHANOL/GASOLINE BLENDS AS AUTOMOTIVE FUELS J. R. Allsup and D. B. Eccleston 1979 13 p refs Presented at the 3rd Intern. Alcohol Fuels Technol., Asilomar, Calif., 28 May 1979

(CONF-790520-5) Avail: NTIS HC A02/MF A01

An experimental study of gasoline and 10% ethanol/90% gasoline blends was made using five late-model vehicles operated on a climate controlled chasis dynamometer. Data were obtained to permit comparisons of fuel economy, emissions, and other significant operational characteristics observed in tests with the two fuels. Volumetric fuel economy was shown to be slightly decreased, while energy economy was slightly increased using the ethanol/gasoline blend. Compared with the results using base gasoline, the use of the ethanol/gasoline blend had no adverse effect upon regulated emissions at test temperatures within the range 20 to 75 F; at 100 F there were mirror increases in emissions using the ethanol/gasoline blends.

N80-15281# Argonne National Lab., III. ENVIRONMENTAL PLANNING AND ASSESSMENT FOR HIGHWAY VEHICLE USE TO ALCOHOL FUELS

M. J. Bernard, III and O. M. Bevilaqua 1979 12 p Presented at 3d Intern. Alcohol Fuels Technol., Asilomar, Calif., 28 May 1979

(Contract W-31-109-eng-38)

(CONF-790520-2) Avail: NTIS HC A02/MF A01

The DOE environmental evaluation process designed to implement the National Evnironmental Policy Act policies and guidance is presented. In particular, it focused on that process as it is being used for DOE's alcohol fuels project within the Office.

N80-15282# California Univ., Livermore. Lawrence Livermore Lab.

#### SIMULATION OF LNG VAPOR SPREAD AND DISPERSION BY FINITE ELEMENT METHODS

S. T. Chan, P. M. Gresho, and R. L. Lee Jul. 1979 36 p refs Presented at Natl. Conf. on Numerical Methods in Heat Transfer, College Park, Md., 24 Sep. 1979 (Contract W-7405-eng-48)

(UCRL-82441; CONF-790915-1)

Avail: NTIS

HC A03/MF A01

Two finite element models (one based on solving the time dependent, two dimensional conservation equations of mass, momentum, and energy, with buoyancy effects included via the Boussinesq approximation; the other based on solving the otherwise identical set of equations except using the hydrostatic assumption) are described and applied to predict some aspects of the vapor dispersion phenomena associated with liquefied natural gas (LNG) spills. A number of controlled numerical experiments, representing a reasonable expected range of LNG spill scenarios and atmospheric conditions, were carried out. Data regarding the applicability and limitations of the hydrostatic assumption for predicting LNG vapor spread and dispersion are established on comparing the results obtained with these finite element models.

#### N80-15287# Department of Energy, Washington, D. C. COMMERCIALIZATION STRATEGY REPORT FOR RE-COVERY OF NATURAL GAS FROM UNCONVENTIONAL SOURCES

J. Ham, S. E. Atkinson, and L. Dewey 1978 90 p refs (TID-28848-Draft) Avail: NTIS HC A05/MF A01

Tight gas sands and Devonian shale are ready for commercialization, although higher than historical gas prices, improved recovery technology, and an aggressive commercialization program are required to fully develop these resources. Coalbed methane for local (non-pipeline) markets appears ready for commercialization for the local (self-help) industrial or municipal market. Coalbed methane for pipeline markets does not appear ready for commercialization in the near term due to highly uncertain geologic properties, economic uncertainties, perceived safety hazards, and limited interest by mine operators. Geopressured aquifers do not appear ready for commercialization in the near term because of vast geologic, technical, and environmental uncertainties and high production costs. Given a gap in domestic supplies to 6 to 8 Tcf in 1990, gas from the unconventional, domestic sources could fill 3 to 6 Tcf of this gap. DOF

N80-15288# Sandia Labs., Albuquerque, N. Mex. LOW TEMPERATURE REACTION PATH FOR COAL LIQUEFACTION

M. G. Thomas and R. K. Traeger 1979 14 p refs Presented at the Am. Chem. Soc. Natl. Meeting, Washington, D.C., 10 Sep. 1979

(Contract EY-76-C-04-0789)

CONF-790917-7) (SAND-79-0738C; Avail: NTIS

HC A02/MF A01

The applicability of advanced, two-stage liquefaction processes which could lead to the development of new, low temperature and pressure liquefaction schemes is evaluated. DOE

N80-15289# Los Alamos Scientific Lab., N. Mex.
NEW HEAT TRANSFER GEOMETRY FOR HYDRIDE HEAT ENGINES AND HEAT PUMPS

W. A. Steyert Jul. 1979 7 p refs (Contract W-7405-eng-36)

(LA-7822) Avail: NTIS HC A02/MF A01

A porous metal hydride (LiNi5H6) composite is presented that provides both mechanical stability to hydride beds and excellent heat transfer to the hydride when used in the appropriate configuration.

N80-15290# Department of Energy, Washington, D. C. REPORT OF THE ALCOHOL FUEL POLICY REVIEW Jun. 1979 117 p (DOE/PE-0012) Avail: NTIS HC A06/MF A01

Policy studies were conducted to assess the potential of alcohol fuels as an alternative source of energy. The conclusions of the analysis are summarized and recommendations to stimulate the use of alcohol fuels from renewable resources are presented, including major policies that the President has endorsed. R.E.S.

N80-15291# Arizona State Univ., Tempe. College of Engineering and Applied Sciences.

CONVERSION OF CELLULOSIC AND WASTE POLYMER MATERIAL TO GASOLINE

J. L. Kuester 28 Mar. 1979 52 p refs (COO-2982-38) Avail: NTIS HC A04/MF A01

The present status and future plans for a project to convert cellulosic (biomass) and waste synthetic polymer materials to quality liquid fuels is presented. A thermal gasification approach was utilized followed by catalytic liquid fuels synthesis steps. Potential products include a medium quality substitute for natural gas or liquid fuel equivalents of diesel fuel, kerosene or high octane gasoline. The process appears very flexible with regard to ability to handle different sources of feedstock. Results to date indicate quality products can be produced. Product yields need to be improved with the main thrust centered on improvement of pyrolysis gas composition. Other items to be addressed are study of alternate economic feedstocks, waste stream characterization, and liquid fuels synthesis and tailoring with particular attention on the effects of alternate feedstocks. A description of a proposed 10 ton/day pilot plant is presented with flow sheet, material balance and cost estimates.

N80-15293# Oregon State Univ., Corvallis. INVESTIGATION OF THE VIABILITY AND COST EFFECTIVE-NESS OF SOLID FUEL GASIFIERS CLOSE COUPLED TO INTERNAL COMBUSTION ENGINES FOR 200 kWe POWER GENERATION Progress Report

J. G. Mingle and D. C. Junge Jan. 1979 52 p refs (Contract EY-76-S-06-2227)

(DOE/RL-90476-13; PR-9; RLO-2227-T22-13) Avail: NTIS HC AO4/MF AO1

The viability and cost effectiveness of a 200 kWe engine generator unit fueled by a direct coupled, solid fuel gasifier were studied. Fuel and gasifier technology, gas treatment (clean up) for engine use, engine use technology, other uses for gasifiers, the viability of close coupled units, and an estimate of cost effectiveness are discussed. Present small experimental gasifier systems were found to perform as expected and have served to demonstrate the technology. Certain needed development efforts are discussed.

N80-15294# TRW Defense and Space Systems Group, Redondo Beach, Calif.

COAL SULFUR MEASUREMENTS Final Report, Jan. 1976 - Dec. 1978

J. W. Hamersma and M. L. Kraft Jul. 1979 76 p refs

(Contract EPA-68-02-2165) (PB-299575/1:

EPA-600/7-79-150)

NTIS Avail:

HC A05/MF A01 CSCL 081

A technique for sulfur forms analysis based on low temperature oxygen plasma ashing is presented. It involves analyzing the low-temperature plasma ash by modified ASTM techniques after selectively removing the organic material. The procedure was tested on 25 coals and compared with ASTM analyses with excellent results. A separate set of experiments showed that it is also feasible to determine organic sulfur directly by trapping SOx in the plasma ash effluent.

N80-15296# Purdue Univ., Lafayette, Ind. School of Materials

SULFUR FIXATION DURING COAL GASIFICATION Final Report, 1 Mar. 1975 - 28 Feb. 1978

R. Schuhmann, Jr., R. H. Spitzer, and A. J. Mehta 15 Dec. 1978 107 p refs

(Grant NSF AER-75-02665)

(PB-301104/6; PRF-8601) Avail: NTIS HC A06/MF A01 CSCL 07A

The development of basic engineering data for design of a coal gasification process in which the sulfur is fixed and separated in chemical combination with iron is reported. Results of thermodynamic calculations and phase equilibrium studies conducted for the ternary condensed systems Fe-O-S and Fe-C-S. and for equilibria of condensed phases in these systems with gases containing various combinations of C, O, H, and S are given. It is shown that iron oxides, metallic iron, and iron silicates should be effective sulfur fixation agents over wide ranges of gas compositions and gasification temperature, both below and above the melting point of iron sulfide.

N80-15297# Texas A&M Research Foundation, College Station. Dept. of Chemical Engineering.

CONVERSION OF COAL-BASED METHANOL TO ETHYLENE AND A GASEOUS FUEL Final Report, 1 Oct. 1975 - 30 Sep. 1978

Rayford G. Anthony 1 Dec. 1978 47 p ref

(Grant NSF AER-74-20135)

(PB-301256/4; NSF/RA-780616) NTIS Avail:

HC A03/MF A01 CSCL 07A

Development of a catalytic process which converts methanol into ethylene and a gaseous fuel similar to natural gas is reported. An AW500 type catalyst proved to be the best catalyst for converting methanol into ethylene, 80 to 98 percent of the alcohol being converted into 16 to 60 percent yields of ethylene. Coal-based methanol was converted into a gaseous mixture composed of 50 percent dimethyl ether, 33.3 percent hydrogen and 16.7 percent carbon monoxide by passing the alcohol over alumina and zinc chromite catalysts at 300-500 C. The major cost of producing ethylene or gaseous fuel is the initial cost of synthesis gas produced from coal that is subsequently used to produce methanol.

N80-15298# New Mexico Energy Inst., Las Cruces. ECONOMIC ANALYSIS OF SMALL SCALE BIOCONVER-SION UNITS IN NEW MEXICO Final Report, 1 Sep. 1977 -31 May 1979

Wendell Hull and Eugene E. Staffeldt Jun. 1979 156 p refs (Contract EMD-77-2202)

(PB-301390/1; NMEI-37) Avail: NTIS HC A08/MF A01 CSCL 21D

Three New Mexico agribusinesses were analyzed to find an economic method for converting biomass from agricultural sources to methane. Primary design goals were simplicity, least-cost construction, and safe operation. Two basic digestion systems were designed. They vary only in digester vessel and related component size, not in operation. Each system was evaluated with respect to cost and operational characteristics. Recommendations are given for each business studied.

N80-15304# New Brunswick Electric Power Commission, Fredericton. Commercial Div.

MEASUREMENT OF ENERGY TO HEAT HOUSES: INITIAL STUDY

Verne Ireton 6 Jun. 1979 35 p refs (PB-299448/2) Avail: NTIS HC A03/MF A01 CSCL 13A

A program of measurement of the energy consumed for residential space heating was instituted during the summer of 1978. It was felt that heat loss calculations are very conservative and that there is a much larger difference between the energy consumed by a combustion system and an electrical system than that calculated by assuming a furnace efficiency' or a 'seasonal performance factor'. The results obtained during the 1978/79 heating season are presented.

N80-15346# Brookhaven National Lab., Upton, N. Y.

PARTIAL DISCHARGE PERFORMANCE OF LAPPED PLASTIC INSULATION FOR SUPERCONDUCTING POWER TRANSMISSION CABLES AND THE DIELECTRIC STRENGTH OF SUPERCRITICAL HELIUM GAS

A. J. Pearmain (University College, Dublin, Ireland), M. Kosaki, (Nagoya Univ., Japan), and R. A. Thomas 1978 11 p refs Presented at Conf. on Elec. Insulation and Dielectric Phenomena, Pocono Manor, Pa., 29 Oct. 1978

(Contract EY-76-C-02-0016)

(BNL-24779: CONF-781027-2)

HC A02/MF A01

A superconducting power transmission cable was designed using a flexible ac cable with Nb3Sn superconductor force cooled by supercritical helium. A lapped, multilayer plastic tape construction was selected for the electrical insulation with supercritical helium gas filling the butt spaces between tapes. Evaluation of many different tapes showed biaxially oriented laminated polypropylene tape to be a promising dielectric. A series of tests on short samples of insulation wound in a cable-type configuration enabled improvements to be made in screen design and winding techniques. Some partial discharge results from short sample tests are described, and an apparatus with variable electrode spacing developed for studying the effect of electrode material,

N80-15420# Environmental Protection Agency, Ann Arbor, Mich. Inspection and Maintenance Staff.

spacing and area on the breakdown strength of supercritical

EFFECTS OF INSPECTION AND MAINTENANCE PRO-GRAMS ON FUEL ECONOMY

Mar. 1979 15 p refs

helium is discussed.

(PB-297583/7; IMS-001/FE/1)

HC A02/MF A01 CSCL 13B

NTIS Avail:

NTIS

The primary goal of inspection and maintenance (I/M) programs is to improve air quality by reducing emissions from motor vehicles. Many studies indicate that I/M programs will achieve this goal. In addition several studies indicate that fuel economy improvement can be expected to occur as a result of maintenance performed on vehicles failing an I/M test. Most studies looked at pre-1975 model year vehicles and had expert mechanics performing the maintenance work. Both the results from past studies and the results from more recent studies are considered to provide EPA's best estimates of fuel economy benefit which can be attributed to I/M maintenance.

N80-15422\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

PHOTOVOLTAIC POWER SYSTEM RELIABILITY CONSID-**ERATIONS** 

Vincent R. Lalli 1980 9 p refs Presented at the Ann. Reliability and Maintainability Symp., San Francisco, 22-24 Jan. 1980 (Contract DE-AB29-76EI-20370)

(NASA-TM-79291; DOE/NASA/20370-79/19; E-235) Avail: NTIS HC A02/MF A01 CSCL 14D

An example of how modern engineering and safety techniques can be used to assure the reliable and safe operation of photovoltaic power systems is presented. This particular application is for a solar cell power system demonstration project designed to provide electric power requirements for remote villages. The techniques utilized involve a definition of the power system natural and operating environment, use of design criteria and analysis techniques, an awareness of potential problems via the inherent reliability and FMEA methods, and use of fail-safe and planned spare parts engineering philosophy.

N80-15428\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

A RELATION BETWEEN SEMIEMPIRICAL FRACTURE ANALYSES AND R-CURVES

Thomas W. Orange Jan. 1980 45 p refs

(NASA-TP-1600; E-9963) Avail: NTIS HC A03/MF A01 CSCL 20K

The relations between several semiempirical fracture analyses (SEFA) and the R-curve concept of fracture mechanics are examined and the conditions for equivalence between a SEFA and an R-curve are derived. A hypothetical material is employed to study the relation analytically. Equivalent R-curves are developed for several real materials using data from the literature. For each SEFA there is an equivalent R-curve whose magnitude and shape are determined by the SEFA formulation and its empirical parameters. If the R-curve is indeed unique, then the various empirical parameters cannot be constant, and vice versa. However, for one SEFA the differences are small enough that they may be within the range of normal data scatter for real materials.

N80-15544# Bureau of Mines, Denver, Colo. Mining Research Center.

THREE POTENTIAL LONGWALL MINING METHODS FOR THICK COAL SEAMS IN THE WESTERN UNITED STATES Richard H. Oitto 1979 41 p refs (PB-299568/6; BM-IC-8792) Avail: NTIS HC A03/MF A01

CSCL 08I

Three longwall mining methods practiced in foreign countries are described. Potential for increasing underground recovery and productivity in thick coalbeds of the western United States is emphasized. The methods are multislice longwalling, longwall caving, and high-face longwalling. Foreign practices and possible application in the United States are discussed. GRA

N80-15553\*# Technical Report Services, Rocky River, Ohio. EVALUATION OF FEASIBILITY OF PRESTRESSED CON-CRETE FOR USE IN WIND TURBINE BLADES

Seymour Leiblein, D. S. Londahl, Donn B. Furlong, and Mark E. Dreier Sep. 1979 119 p refs Prepared in cooperation with Tuthill Pump Co., San Rafael, Calif. and Paragon Pacific, Inc., El Segundo, Calif.

(Contracts NAS3-20596; NAS3-30813; EX-76-I-01-1028; NASA Order C-25906)

(NASA-CR-159725; DOE/NASA/5906-79/1) Avail: NTIS HC A06/MF A01 CSCL 10B

A preliminary evaluation of the feasibility of the use of prestressed concrete as a material for low cost blades for wind turbines was conducted. A baseline blade design was achieved for an experimental wind turbine that met aerodynamic and structural requirements. Significant cost reductions were indicated for volume production. Casting of a model blade section showed no fabrication problems. Coupled dynamic analysis revealed that adverse rotor tower interactions can be significant with heavy rotor blades.

N80-15554\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio. SPACE SOLAR CELLS: HIGH EFFICIENCY AND RADIA-TION DAMAGE

Henry W. Brandhorst, Jr. and Daniel T. Bernatowicz 1980 12 p refs Presented at 14th Photovoltaic Specialists Conf., San Diego, Calif., 7-10 Jan. 1980; sponsored by IEEE (NASA-TM-81387; E-297) Avail: NTIS HC A02/MF A01 CSCL 10A

The progress and status of efforts to increase the end-of-life efficiency of solar cells for space use is assessed. High efficiency silicon solar cells, silicon solar cell radiation damage, GaAs solar cell performance and radiation damage and 30 percent devices are discussed.

R.E.S.

N80-15560\*# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

#### CANDIDATE THERMAL ENERGY STORAGE TECHNOLO-GIES FOR SOLAR INDUSTRIAL PROCESS HEAT APPLICA-TIONS

Edward R. Furman 1979 12 p refs Presented at Solar Industrial Process Heat Conf., Oakland, Calif., 31 Oct. - 2 Nov. 1979; sponsored by Solar Energy Res. Inst. (Contract EC-77-A-31-1034)

(NA SA-TM-81380; DOE/NASA/1034-79/6; E-285) Avail: NTIS HC A02/MF A01 CSCL 10A

A number of candidate thermal energy storage system elements were identified as having the potential for the successful application of solar industrial process heat. These elements which include storage media, containment and heat exchange are shown.

R.C.T.

N80-15562\*# National Aeronautics and Space Administration.

Marshall Space Flight Center, Huntsville, Ala. Materials and

Processes Lab

CHARACTERIZATION OF THREE TYPES OF SILICON SOLAR CELLS FOR SEPS DEEP SPACE MISSIONS. VOLUME 1: CURRENT-VOLTAGE CHARACTERISTICS OF OCLI BSF/BSR 10 ohm-cm, AND BSR 2 ohm-cm CELLS AS A FUNCTION OF TEMPERATURE AND INTENSITY

A. F. Whitaker, S. A. Little, C. F. Smith, Jr., and V. A. Wooden Nov. 1979–93 p. refs

(NASA-TM-78253) Avail: NTIS HC A05/MF A01 CSCL 10A

Three types of high performance silicon solar cells. BSF/BSR 10 ohm-cm. BSR 10 ohm-cm, and BSR 2 ohm-cm, were evaluated for their low temperature and low intensity performance. Sixteen cells of each type were subjected to ten temperatures and nine intensities. The BSF/BSR 10 ohm-cm cells provided the best performance at 1 solar constant and : 25 C with an efficiency of 14.1% while the BSR 2 ohm-cm cells had the highest low temperature and low intensity performance with an efficiency of 22.2% at 0.04 solar constant and -170 C and the most consistent cell-to-cell characteristics.

#### N80-15563\*# Alabama Univ., Huntsville.

#### A SURVEY OF PHOTOVOLTAIC SYSTEMS

Aug. 1979 213 p Sponsored in part by DOE (Contract NAS8-31293)

(NASA-CR-150696) Avail: NTIS HC A10/MF A01 CSCL 10A

Solar photovoltaic manufacturers and suppliers are listed. Data sheets on specific products and typical operating, installation, or maintenance instructions and procedures are appended R.E.S.

N80-15564# California Univ., Livermore. Lawrence Livermore Lab.

### NOVEL SCHEME FOR MAKING CHEAP ELECTRICITY WITH NUCLEAR ENERGY

J. A. Pettibone 24 Aug. 1979 23 p refs

(Contract W-7405-eng-48)

(UCID-18153-Rev-1) Avail: NTIS HC A02/MF A01

Nuclear fuels should produce cheaper electricity than coal, considering their high specific energy and low cost. To exploit these properties, the scheme proposed here replaces the expensive reactor/steam-turbine system with an engine in which the expansion of a gas heated by a nuclear explosion raises a mass of liquid, thereby producing stored hydraulic energy. This energy could be converted to electricity by hydroelectric generation with

water as the working fluid or by magnetohydrodynamic (MHD) generation with molten metal. A rough cost analysis suggests the hydroelectric system could reduce the present cost of electricity by two-thirds, and the MHD system by even more. Such cheap power would make feasible large-scale electrolysis to produce hydrogen and other fuels and chemical raw materials.

## N80-15565# Los Alamos Scientific Lab., N. Mex. DECENTRALIZED SOLAR PHOTOVOLTAIC ENERGY SYSTEMS

M. C. Krupta Jun. 1979 110 p refs

(Contract W-7405-eng-36)

(LA-7866-TASE) Avail: NTIS HC A06/MF A01

A model residential photovoltaic system which utilizes a solar cell array roof shingle combination is discussed in relation to developing and generating the environmental data for decentralized solar photovoltaic systems. Material requirements, operating residuals, land requirements, water requirements, production processes, and production residuals for the systems operation are examined. Environmental, health, safety, and resource availability impacts are reported.

A.W.H.

## N80-15566# Sandia Labs., Albuquerque, N. Mex. DESIGN OF PHOTOVOLTAIC SYSTEMS FOR RESIDENTIAL APPLICATIONS IN THE UNITED STATES

G. J. Jones 1979 7 p refs Presented at the Photovoltaic Solar Energy Conf., West Berlin, 23 Apr. 1979

(Contract DE-AC04-76DP-00789)

(SAND-78-2186C; CONF-790457-3) Avail: NTIS HC A02/MF A01

Photovoltaic system configurations for single family residences were analyzed to determine the optimum design. Cost effectiveness and the effect of climate on the 15 regions studied were determined as factors in the analysis. The interaction of the residential photovoltaic system with the local utility is discussed and the economic viability of onsite energy storage is examined.

A.W.H.

N80-15568# California Univ., Berkeley. Lawrence Berkeley

## GEOTHERMAL ENERGY DEVELOPMENT FROM THE SALTON TROUGH TO THE HIGH CASCADES

N. E. Goldstein Jan. 1979 15 p refs. Presented at the 3rd Natl. Conf. and Exhibition on Technol. for Energy Conserv., Tucson, Ariz. 23-25 Jan. 1979

(Contract W-7405-eng-48)

(LBL-8703; CONF-790107-10) Avail: NTIS HC A02/MF A01

Operations at Cerro Preto, the only water-dominated geothermal field currently generating electric power in North America, were assessed to identify potential problems which might face U.S. producers in the Imperial Valley. Geological hydrogeological, geochemical, and geophysical characteristics of the Salton Trough were investigated, as well as those of Mt. Hood. Oregon, where drilling was conducted, as a preliminary to determining the geothermal potential of the entire Cascade Range.

A.R.H.

N80-15569# EIC, Inc., Newton, Mass.

## CORROSION PROTECTION OF SOLAR-COLLECTOR HEAT EXCHANGERS WITH ELECTROCHEMICALLY DEPOSITED FILMS Semiannual Report, 15 May 30 Nov. 1978

S. B. Brummer, V. R. Koch, and G. H. Schnaper Jan. 1979 44 p refs

(Contract EM-78-C-04-4297)

(COO-4297-1; SAR-1) Avail: NTIS HC A03/MF A01

A novel corrosion protection technique is presented for the common solar collector metals: Al, Cu, and Fe as mild steel. The technique involves the potentiostatic electrochemical deposition of thin, adherent polymer films on the interior of heat exchanger tubes by application of a current in the presence of a suitable dissolved organic monomer. Tetramethylphenol (TMP) was shown to film Al/Zn samples, although complete coverage was not achieved. Copper and iron readily accommodate dimethylphenol and metaphenylenediamine as well as TMP films. As in the case of Al, holidays or cracks in the film were apparent thus precluding good corrosion protection.

N80-15570# Midwest Research Inst., Golden, Colo. SERAPH IMPLEMENTATION PLANS

J. Castle, W. Su, D. A. Dougherty, and J. D. Wright May 1979 45 p refs

(Contract EG-77-C-01-4042)

(SERI/RR-34-152) Avail: NTIS HC A03/MF A01

The Solar Energy Research and Applications in Process Heat test facility (SERAPH) will provide the capability of addressing many of the technical issues that currently hamper industrial solar thermal energy system implementation. The initial capability of producing steam will be at a rate of 900 lb/h (410 kg/h) which corresponds to an energy delivery rate of 1.5 million Btu/h (1.6 x 10 to the 6th power) at 430 F (220 C) with expansion capability to approximately 600 F (315 C). The initial system controls will be analog with supervisory and direct digital control to follow. The issues to be addressed at SERAPH will be computer predictive model validation and refinement, control strategy development, solar equipment evaluation, and the accumulation of operating and maintenance experience. A consistent theme throughout the planning and operation of SERAPH is the need to develop and follow practices that are consistent with conventional industrial operating procedures.

#### N80-15571# Midwest Research Inst., Golden, Colo. ALTERNATE CYCLES APPLIED TO OCEAN THERMAL **ENERGY CONVERSION**

B. Shelpuk and A. Lewandowski Feb. 1979 14 p refs Presented at the 11th Ann. Offshore Technol. Conf., Houston, Tex., 30 Apr. - 3 May 1979

(Contract EG-77-C-01-4042)

CONF-790444-3) (SERI/TP-34-180;

NTIS

HC A02/MF A01

Four open cycle OTEC concepts are described. These are: (1) single, vertical-axis turbine; (2) multiple, horizontal-axis turbine;

(3) foam lift/hydraulic turbine; and (4) mist lift/hydraulic turbine. A preliminary assessment of achievable performance is made in addition to a description of the subsystem performance objectives which would support the achievement of the full potential inherent in these concepts. The results and conclusions include a description of the research objectives, achievement of which make open cycle OTEC a viable alternative as a national energy source.

N80-15574# Sandia Labs., Albuquerque, N. Mex. METHODOLOGY FOR DETERMINING THE CONFIGURA-TION OF THE OPTIMUM SOLAR TOTAL ENERGY SYS-**TEM** 

R. R. Peters May 1979 59 p refs (Contract EY-76-C-04-0789)

(SAND-79-0422) Avail: NTIS HC A04/MF A01

A methodology for determining the configuration of the most economical solar total energy system (STES) for a particular application is presented. The methodology is examined by using it to design a STES for a certain function. The results are presented and the sensitivity of the system design to changes in economic parameters, system location, and limits on the amount of A.W.H. purchased energy are discussed.

N80-15576# Gilbert Associates, Inc., Reading, Pa. RESEARCH AND EVALUATION OF BIOMASS RESOURCES/ CONVERSION/UTILIZATION SYSTEMS (MARKET/ EXPERIMENTAL ANALYSIS FOR DEVELOPMENT OF A DATA BASE FOR A FUELS FROM BIOMASS MODEL)
Quarterly Technical Progress Report, 1 Jan. - 31 Mar. 1979 Y. K. Ahn, R. J. Brumberg, H. C. Chen, E. T. Nelson, R. P. Stringer, and R. C. Bailie (Environmental Energy Engineering, Inc., Morgantown, W. Va.) 1979 23 p (Contract ET-78-C-02-5022)

(COO-5022-5) Avail: NTIS HC A02/MF A01

The development of a linear programming model to determine the mix of biomass resources an conversion processes to produce fuel is summarized. A market analysis of the need for biomass derived fuel and the regional availability of biomass resources on seasonal bases is discussed. Biomass conversion profiles (gasification, pyrolysis, and direct combustion) are discussed for 100 biomass materials. The materials include wood species, bagasse, sugar cane, wheat, and rice straw. A.W.H.

N80-15577# Sandia Labs., Albuquerque, N. Mex. DESIGN AND PERFORMANCE OF SILICON SOLAR CELLS UNDER CONCENTRATED SUNLIGHT

H. T. Weaver and R. D. Nasby 1979 4 p refs Presented at the Intern. Solar Energy Soc. Meeting, Atlanta, 28 May 1979 (Contract EY-76-C-04-0789)

CONF-790541-39) (SAND-79-1165C; HC A02/MF A01

Avail: NTIS

Measurements and numerical calculations of performance of silicon solar cells, designed for operation under concentrated sunlight, are presented. Two design strategies are discussed and data from cells of each type are used for comparison with theory. The calculations ignore degeneracy and high effects but include Auger and trap recombination. Experimental base lifetimes are used for modeling.

N80-15578# Sandia Labs., Albuquerque, N. Mex.
STATUS OF THE US DEPARTMENT OF ENERGY PHOTO-VOLTAIC CONCENTRATOR DEVELOPMENT PROJECT

B. D. Shafer, E. C. Boes, M. W. Edenburn, and D. G. Schueler 1979 8 p refs Presented at the 1979 Photovoltaic Solar Energy Conf., West Berlin, 23 Apr. 1979 (Contract DE-AC04-76DP-00789)

CONF-790457-2) (SAND-78-2187C;

Avail: NTIS

HC A02/MF A01 The development of a photovoltaic concentrator technology which results in low costs, long life photovoltaic arrays at a price of less than \$0.50 per peak watt is discussed. The development work in the areas of concentrator cells, concentrator modules, and complete arrays is surveyed. The various designs of the concentrator cells and concentrator modules are presented. and evaluated in regard to their ability to produce cost effective energy.

N80-15582# New Mexico Univ., Albuquerque. Dept. of

DISTRICT SPACE HEATING POTENTIAL OF LOW TEMPER-ATURE HYDROTHERMAL GEOTHERMAL RESOURCES IN THE SOUTHWESTERN UNITED STATES

P. K. McDevitt and C. R. Rao (New Mexico Energy Inst.) Oct. 1978 74 p refs Prepared jointly with New Mexico State Univ., Las Cruces

(Contract EC-77-S-04-3992)

(NMEI-10-1) Avail: NTIS HC A04/MF A01

A computer simulation model (GIRORA-Nonelectric) developed to study the economics of district space heating using geothermal energy is described. GIRORA-Nonelectric is a discounted cashflow investment model which evaluates the financial return on investment for space heating. The model consists of two major submodels: the exploration for and development of a geothermal anomaly by a geothermal producer, and the purchase of geothermal fluid by a district heating unit. A sensitivity analysis of the model subject to changes in physical and economic parameters is presented. The economic analysis and technological screening criteria are used to examine all the low temperature geothermal sites in Southwestern United States for economic viability for space heating application.

N80-15583# Midwest Research Inst., Golden, Colo. LOW TEMPERATURE THERMAL ENERGY STORAGE: A STATE-OF-THE-ART SURVEY

F. Baylin Jul. 1979 120 p refs (Contract EG-77-C-01-4042)

(SERI/RR-54-164) Avail: NTIS HC A06/MF A01

The preliminary version of an analysis of activities in research, development, and demonstration of low temperature thermal energy storage (TES) technologies having applications in renewable energy systems is presented. Three major categories of thermal storage devices are considered: sensible heat; phase change materials; and reversible thermochemical reactions. Both short-term and annual thermal energy storage technologies based on principles of sensible heat are discussed. Storage media considered are water, earth, and rocks. Annual storage technologies include solar ponds, aguifers, and large tanks or beds of water, earth, or rocks. All program processes from basic research through commercialization efforts are investigated. Nongovernment-funded industrial programs and foreign efforts are outlined

as well. Data describing low temperature TES activities are presented also as project descriptions.

N80-15584# Minnesota Univ., Minneapolis. Dept. of Mechanical Engineering.

## MELTING IN PHASE-CHANGE THERMAL STORAGE MEDIA Final Report

E. M. Sparrow and J. W. Ramsey 1978 90 p refs (Contract EY-76-S-02-2993)

(COO-2993-1) Avail: NTIS HC A05/MF A01

Research on melting caused by a tubular heat source embedded in a solid phase-change medium is presented. Separate studies were performed with the heater positioned with its axis horizontal and with its axis vertical. Both orientations were investigated because they correspond to those of proposed bulk-type storage configurations. In addition, the direction of the gravity force relative to the heating surface is different in the two cases and this causes differences in the buoyancy forces that act on the liquid generated by the melting process. Two phase-change media were employed in the experiments: (1) the eutectic mixture of sodium nitrate and sodium hydroxide--melting temperature of 244 C; and (2) naphthalene--melting temperature of 80 C. The analysis was carried out on a specific fluid or a temperature level. The experimental results encompass information on both the heat transfer coefficient at the heated surface and on the size and shape of the melt zone. DOE

N80-15585# Sandia Labs., Albuquerque, N. Mex. Fluid Mechanics and Heat Transfer Div.

EVALUATION OF THE EVACUATED SOLAR ANNULAR RECEIVERS USED AT THE MIDTEMPERATURE SOLAR SYSTEMS TEST FACILITY (MSSTF)

A. C. Ratzel Jul. 1979 56 p refs

(Contract EY-76-C-04-0789)

(SAND-78-0983) Avail: NTIS HC A04/MF A01

A parabolic cyclindrical collector field subsystem used in tests to evaluate the vacuum integrity characteristics of ten glass to metal sealed concentric cylinder receivers is described. Tests and test results on the vacuum integrity and the collector system performance with evaluated receiver annuli and with receiver annuli maintained at atmospheric pressure are described. Heat loss reductions for different annulus gas pressures and under different receiver tube operating temperatures are presented. The collector's efficiency dependence upon operating temperature, annulus pressures, and insolation is discussed.

A.W.H.

## N80-15586# Higgins, Auld and Associates, Albuquerque, N. Mex. ANALYSIS OF FIELD TEST RESULTS FOR SINGLE-AXISTRACKING SOLAR COLLECTOR FOUNDATIONS

H. E. Auld Jul. 1979 36 p refs (Contract EY-76-C-04-0789)

(SAND-79-7023) Avail: NTIS HC A03/MF A01

Five reinforced concrete cylindrical piers, typical of foundations utilized for single-axis-tracking solar collector systems, were tested to determine eccentric horizontal and vertical failure loads. The results from these tests were found to compare favorably with the results from theoretical calculations which incorporate the geotechnical parameters of the test site. Recommendations are made for the incorporation of these results into the design of foundations for future solar collector systems.

N80-15588# Alabama Univ., University. Bureau of Engineering Research.

HEAT PUMP CENTERED INTEGRATED COMMUNITY ENERGY SYSTEMS: SYSTEMS DEVELOPMENT

W. J. Schaetzle and C. Everett Brett Mar. 1979 174 p refs Prepared for Argonne Natl. Lab., III.

(Contract W-31-109-eng-38)

(ANL/ICES-TM-30) Avail: NTIS HC A08/MF A01

The design, operation, economics, environmental impacts, and expected performance of heat pump centered integrated community energy systems are discussed in detail.

N80-15589# Argonne National Lab., III. Energy and Environmental Systems Div.

HEAT PUMP CENTERED INTEGRATED COMMUNITY ENERGY SYSTEMS; SYSTEM DEVELOPMENT Interim Report

R. E. Crane (Franklin Res. Center), H. G. Lorsch (Franklin Res. Center), and R. G. Werden Feb. 1979 196 p refs (Contract W-31-109-eng-38)

(ANL/ICES-TM-26) Avail: NTIS HC A09/MF A01

The concept of a heat pump centered integrated community energy system (HP-ICES) was explored based on a reference community located in the Northeast with a population of 10,000. Engineering and economic analyses were performed for the HP-ICES and for conventional heating/cooling systems. Sensitivity analyses were used to determine variations in results from changes in: community size; community energy density; waste heat utilization; energy cost escalation; maintenance and operating personnel; and central HP-ICES ownership. The effect of each of the critical parameters on the economic viability of HP-ICES is shown. Conditions of equal 20-year life cycle costs for HP-ICES and for conventional systems are given.

# N80-15590# Little (Arthur D.), Inc., Cambridge, Mass. UTILIZATION OF WASTE HEAT FROM FEDERAL FACILITIES Final Report Ch. 1970, 1932, auto-

Feb. 1979 182 p refs (Contract EC-77-C-05-5523)

(ORO-5523-T1) Avail: NTIS HC A09/MF A01

The technical and economic feasibility of using waste heat from the Oak Ridge Gaseous Diffusion Plant (ORGDP), Paducah Plant, Portsmouth Gaseous Diffusion Plant (PFDP), and the Savannah River Plant (SRP) for industrial process heat, space heating, power generation, or in agriculture or aquaculture is evaluated. Recommended uses and the cost of implementing waste heat utilization near each site are discussed. The recommended uses at Oak Ridge include district heating, greenhouse heating, and heat pump enhanced temperature elevation of the ORGDP waste heat for subsequent process heat use in a textile mill. At Paducah, the recommendation is to use heat pumps to raise the waste heat temperature for preheating feedwater for a 1000 MW coal-fired power plant. At Portsmouth, greenhouse heating is recommended. At the SRP aquacultural and greenhouse, uses and utilization for power generation by means of a Rankine cycle process are recommended. DOE

N80-15591# Air Products and Chemicals, Inc., Allentown, Pa. DEMONSTRATION OF A NITROGEN BASED CARBURIZING ATMOSPHERE: ENERGY CONSUMPTION OF THE ENDOTHERMIC GENERATOR Quarterly Report, 1 Oct. - 30 Dec. 1978

R. J. Peartree Jan. 1979 22 p (Contract EM-78-C-01-5058)

(CONS/5058-T1; QR-1; ID-12027-1) Avail: NTIS HC A02/MF A01

The energy consumption of an endothermic generator is documented. Two different sized generators were studied and found to have basically the same energy usage characteristics. The energy consumption was found to be dependent on generator output, with less energy consumption per unit volume at higher outputs.

N80-15592# Department of Energy, Washington, D. C. Energy Information Administration.

THE 1985, 1990 AND 1995 MIDTERM ENERGY MARKET MODEL RESULTS UNDER THREE SCENARIOS OF FUEL USE ACT REGULATIONS

W. D. Montgomery, III May 1979 621 p refs (DOE/EIA-0182/2) Avail: NTIS HC A99/MF A01

The incremental impacts of the Powerplant and Industrial Fuel Use Act regulations are analyzed as a function of the stringency of the economic test under which exemptions are granted. To carry out this analysis, the Mid-Term Energy Market Model (MEMM) is used to generate projections of energy supply, demand, and price under the specified assumptions. Industrial fuel demand is modeled by using a separate fuel-choice model to determine the share of oil, gas, and coal; these shares are

then imposed on the MEMM solution. For electric utilities, impacts are modeled by altering the capital costs in the MEMM submodel. Preliminary numerical results of some of the model runs are presented.

N80-15593# Department of Energy, Washington, D. C. Energy Information Administration.

#### ENERGY SUPPLY AND DEMAND IN THE SHORT TERM: 1979 AND 1980

HC A04/MF A01

Jun. 1979 127 p refs (DOE/EIA-0184/4) Avail: NTIS HC A07/MF A01

Overall energy supply and demand balances as well as a detailed discussion of the elements of end-use consumption of coal, natural gas, petroleum products, and electricity are presented. Analyses of the operations of utilities and refineries, the domestic production of coal, natural gas, crude oil, and electricity, and the supply and demand balances for each fuel are provided. Projections of domestic production as well as supply and demand balances, synthetics and imports, and projections for the electric utility sector are included for the short-term.

N80-15594# Department of Energy, Washington, D. C. International Energy Analysis Div. INTERNATIONAL ENERGY ASSESSMENT Analysis Report W. C. Kilgore May 1979 74 p refs (DOE/EIA-0184/1; AR/IA/79-27) NTIS Avail:

A comprehensive assessment of the international energy situation between now and the year 1995 is given. Forecasts of energy supply and demand for each region of the world are included along with estimates of future world oil prices and a sensitivity analysis of the critical factors affecting those prices. The analysis projects that world energy consumption will rise at a rate of between 2.8 and 3.9% per year, over the forecast period, while the demand for petroleum is expected to grow at a rate of 2.0 to 3.5% per year. This growth in consumption is projected to occur during a period in which world economic activity is increasing at the rate of 3.8 to 4.6% per year, such that the estimated ratio of world energy growth to economic growth falls from its historic 1960-1976 ratio of 0.94, to a ratio of 0.71 to 0.85 over the 1976-1995 period. World oil prices are found to be highly uncertain with real prices by 1995 ranging between \$16.50 and \$31.50 per barrel across five projection series. DOF

N80-15595# Illinois Univ., Urbana. Office of Vice Chancellor for Research

ENERGY OPTIMAL USE OF WASTE PAPER Final Report T. L. Gunn Nov. 1978 188 p refs (Contract EY-76-S-02-2893)

(COO-2893-9) Avail: NTIS HC A09/MF A01

The mix of burning and recycling of waste paper that would minimize the total US energy used to make and dispose of the 1974 production of paper is assessed. Five cases are analyzed to determine the effects of various assumptions about how the energy in wood and paper will be treated. In one case, both wood and paper are assumed to have an energy value. In another, neither wood nor paper is assumed to have an energy value. In the other three cases, paper, but not wood, is assumed to have an energy value which is utilized differently in each case. It is found in each case that it is worthwhile in terms of energy conservation to recycle as much high grade de-inking waste paper as can be collected. How much of the other grades of waste paper would be recycled depends on which of the various energy-accounting schemes is used. It is further found that the greatest energy savings are accomplished when both wood and waste paper are acknowledged to have an energy value. DOE

N80-15596# Acres American, Inc., Buffalo, N. Y.
FEASIBILITY OF COMPRESSED AIR ENERGY STORAGE AS A PEAK SHAVING TECHNIQUE IN CALIFORNIA, VOLUME 2 Final Report

Sep. 1978 523 p refs (Contract EY-76-C-03-1331) (SAN-1331-T1) Avail: NTIS HC A22/MF A01

The technical, economic, and siting feasibility, on a preliminary basis, of the use of compressed air energy storage in the state of California was investigated. The analysis was performed on a parametric basis using gas turbines and combined cycle plants as a comparison. The methodology, base data, and results are presented along with the computer program used. The design sites for porous media and compensated hard rock are documented along with an alternate site for each type of plant and the plant designs for porous media and hard rock storage. Developments in gas turbine generators and CAES plant designs are projected as both technologies are expected to advance in the near term. Cost estimates and construction schedules prepared for the plant designs are presented. Results and conclusions are

N80-15597# Institute of Gas Technology, Chicago, III. APPLICATION ANALYSIS OF SOLAR TOTAL ENERGY SYSTEMS TO THE RESIDENTIAL SECTOR. VOLUME 4: MARKET PENETRATION Final Report

Jul. 1979 320 p refs (Contract EG-77-C-04-3787; Proj. 8987)

(ALO-3787-4) Avail: NTIS HC A15/MF A01

The residential consumption of energy in each of the 11 solar total energy systems (STES) regions is given by fuel type and end-use category. The current and projected costs and availability of fossil fuels and electricity for the STES regions are reported. Projections are made concerning residential building construction and the potential market for residential STES. The effects of STES ownership options, institutional constraints, and possible government actions on market penetration potential are considered. Capital costs for two types of STES are determined, those based on organic Rankine cycle (ORC) heat engines and those based on flat plate, water-cooled photovoltaic arrays. Both types of systems utilize parabolic trough collectors. The capital cost differential between conventional and STE systems is calculated on an incremental cost per dwelling unit for comparison with projected fuel savings in the market penetration analysis. Results of a market analysis are summarized.

N80-15598# Department of Energy, Washington, D. C. Office of Conservation and Solar Applications.

NATIONAL PROGRAM PLAN FOR PASSIVE AND HYBRID SOLAR HEATING AND COOLING Interim Report Jun. 1979 131 p

(DOE/CS-0089) Avail: NTIS HC A07/MF A01

A definition of a passive solar system is given, as well as background of Federal involvement in passive solar heating and cooling, program goals and objectives, and an overall implementation approach. Background information on the status of and the strategy and emphasis for technology development is provided, followed by descriptions of passive heating and passive cooling systems and an overview of task classifications for technology development. The technology utilization program is also presented.

N80-15599# Utah Univ.. Salt Lake City.
CONFERENCE ON PERFORMANCE MONITORING TECH-NIQUES FOR EVALUATION OF SOLAR HEATING AND COOLING SYSTEMS

353 p refs Conf. held in Washington, D.C., 3 Apr. 1978 1978

(Contract EG-77-S-04-4094)

(CONF-780432) Avail: NTIS HC A16/MF A01

A general review of solar energy monitoring systems, their relationship to data users and their needs, and a methodology for developing instrumentation systems and performance evaluation techniques based on a systematic procedure for addressing the actual needs of the data user are provided. DOE

N80-15600# Sandia Labs., Albuquerque, N. Mex. Solar Technical Liaison Div.

DYNAMIC STORAGE IN SOLAR TOTAL ENERGY PRO-**GRAMS** 

R. P. Stromberg 1978 27 p refs Presented at the Seminar on Solar Energy Storage, Trieste, Italy, 4 Sep. 1978 (Contract EY-76-C-04-0789)

NTIS

(SAND-78-0958C: CONF-780944-1) NTIS Avail: HC A03/MF A01

A program of research and development to establish the feasibility of the Solar Total Energy Concept is described. The major items of actual hardware are a 32 kW Midtemperature Solar Systems Test Facility at Albuquerque, NM; and two planned Large Scale Experiments at Shenandoah, GA, and Ft. Hood, TX. These programs are described with reference to current literature.

N80-15601# Sandia Labs., Albuquerque, N. Mex. DEPARTMENT OF ENERGY LARGE SOLAR CENTRAL POWER SYSTEMS SEMIANNUAL REVIEW

Nov. 1978 305 p refs Conf. held at Dallas, 19-21 Sep. 1978

(Contract EY-76-C-04-0789)

(SAND-78-8511) Avail: NTIS HC A14/MF A01

Progress in the development of large solar power systems is reported. Hydraulic stability of solar boilers, closed cycle Brayton solar thermal electric power plants, heliostat development, and central receiver systems are discussed along with distributed collectors and total energy and hybrid systems.

N80-15602# Sandia Labs., Albuquerque, N. Mex. DEPARTMENT OF ENERGY LARGE SOLAR CENTRAL POWER SYSTEMS SEMIANNUAL REVIEW

May 1978 262 p refs Conf. held at Reston, Va., 21-22 Mar.

(Contract EY-76-C-04-0789)

(SAND-79-8508) Avail: NTIS HC A12/MF A01

Thirty papers are presented each discussing various aspects of the large solar central power systems program. RES

Engineering N80-15604# Ohio State Univ., Columbus. Experiment Station.

**FUEL UTILIZATION IN RESIDENCES** 

C. Sepsy, M. F. McBride, R. S. Blanchett, and C. D. Jones Sep. 1978 251 p Presented at ASHRAE, Philadelphia, 28 Jan. - 1 Feb. 1979 (EPRI Proj. 137-1)

(EPRI-EA-894) Avail: NTIS HC A12/MF A01

A mathematical model and digital computer program were developed for accurately calculating the energy required by residential housing units on an hourly, daily, monthly, and seasonal basis. The model and program were used to establish an accurate procedure for determining the monthly and seasonal energy requirements of all types of residential structures. The responsefactor technique was used to calculate the dynamic load responses of a residential structure. The model and program take into account all the internal and external dynamic loads imposed on the structure, they were verified by extensive calculations and field measurements applied to nine residential dwelling units in the Columbus, Ohio, area. All contained conventional space heating and cooling equipment, either natural gas or electric forced-air furnaces. A dynamic model for simulating hourly attic space air temperatures was developed and incorporated in the thermal-load calculation procedures.

N80-15605# Department of Energy, Washington, D. C. NUCLEAR STRATEGY OF THE DEPARTMENT OF ENERGY Apr. 1979 89 p

(DOE/ER-0025/D) Avail: NTIS HC A05/MF A01

An analysis of the technical and economic parameters related to the timing and future deployment of nuclear power is presented. A set of alternative nuclear strategies are presented and evaluated. The strategies involve decisions on breeder commercialization, fuel cycle development, and strengthening the nuclear option.

N80-15606# Wharton (E. F. A.), Inc., Philadelphia, Pa. WHARTON ANNUAL ENERGY MODEL: DEVELOPMENT AND SIMULATION RESULTS Final Report

W. Finan and G. R. Schink, Jul. 1979, 93 p. refs

(EPRI Proj. 440-1)

(EPRI-EA-1115) Avail: NTIS HC A05/MF A01

The energy sector of a commercially available macroeconomic model was expanded in order to develop a tool for examining future energy-economy interactions. The specific methodologies employed are described and a set of energy policy simulations using the newly expanded model is presented.

N80-15609# Lincoln Lab., Mass. Inst. of Tech., Lexington. FLYWHEEL ENERGY STORAGE INTERFACE UNIT FOR PHOTOVOLTAIC APPLICATIONS

A. R. Millner and R. D. Hay 1979 6 p refs Presented at the Intersociety Energy Conf., Boston 5 Aug. 1979

(Contract EY-76-C-02-4094)

(COO-4094-44; CONF-790803-42) Avail:

HC A02/MF A01

The design of a flywheel energy storage and conversion system is presented. The system which will serve as an interface between a solar photovoltaic array and an ac load, providing output waveform regulation as well as energy storage is evaluated. Features of the system include magnetic bearings, an ironless armature motor generator, and a low cost flywheel rotor. A DOE preliminary economic analysis is provided.

N80-15611# Argonne National Lab., III. Chemical Engineering

LITHIUM/IRON SULFIDE BATTERIES FOR ELECTRIC **VEHICLES** 

P. A. Nelson, A. A. Chilenskas, and R. K. Steunenberg 1978 24 p refs Presented at the 5th Intern. Electric Vehicle Symp., Philadelphia, 2-5 Oct. 1978

(Contract W-31-109-eng-38)

(CONF-781006-2) Avail: NTIS HC A02/MF A01

Recent progress in the development of LiAI/FeS/sub x/ batteries for electric vehicles is assessed. The possibility of near-term commercialization of a version of the battery that utilizes monosulfide (FeS) positive electrodes in conjunction with low cost, iron alloy current collectors is indicated. Multiple-electrode cells having a specific energy of about 100 Wh/kg are now under test. Conceptual design problems for a compact insulating jacket, which will maintain the battery temperature at 450 C. appear to be solved. Work is also underway on a version of the battery that would utilize FeS2 positive electrodes, which use molybdenum current collectors at present and may require the future development of less expensive current collectors to be commercially attractive. These batteries would ultimately have about 30 to 40% higher specific energy and 50 to 75% higher specific power than the FeS-type batteries. DOF

N80-15612# California Univ., Livermore. Lawrence Livermore Lab

LAMINATED DISK FLYWHEEL PROGRAM

Richard G. Stone 24 Oct. 1978 9 p refs Presented at the Inform. Exchange Conf., Luray, Va., 24 Oct. 1978 (Contract W-7405-eng-48) NTIS

(UCRL-81772; CONF-781046-4) HC A02/MF A01

A program to develop the technology for high energy density, fiber composite flywheels based on the laminated disk concept is described. Progress toward optimizing the flywheel energy system with respect to low volume, low weight, manufacturability, and economy is reported. Program planning areas including the manufacturing of test model flywheels and developing a hub attachment are discussed. A.W.H.

N80-15613# Institute of Gas Technology, Chicago, III. PREDICTION OF CURRENT DISTRIBUTION IN A MOLTEN CARBONATE FUEL CELL

V. Sampath, J. R. Selman, and A. F. Sammells 1978 30 p refs. Presented at the 2d Intern. Symp. on Molten Salts, Pittsburgh, 15-20 Oct. 1978; Sponsored by the Electrochem. Soc., Inc. (Contract EM-78-C-03-1735)

(CONF-781063-1) Avail: NTIS HC A03/MF A01

A mathematical model was developed to predict the performance of a molten carbonate fuel cell as a function of anode and cathode gas compositions, gas flow rates, and polarization characteristics. The effect of gas flow modes such as crossflow and coflow and the effect of higher pressures on the current distribution were studied. The predicted polarization curves agree well with the experimentally generated polarization curves. Conditions for incorporating a microscopic porous electrode model into the overall model development are briefly outlined.

N80-15614# Argonne National Lab., III. DEVELOPMENT OF Li-AI/FeS CELLS WITH LICI-RICH **ELECTROLYTE** 

F. J. Martino, L. G. Bartholme, E. C. Gay, and H. Shimotake 1978 15 p refs Presented at the Symp. on Battery Design and Optimization, Pittsburgh, 15-20 Oct. 1978 (Contract W-31-109-eng-38)

(CONF-7810135-2) Avail: NTIS HC A02/MF A01

Rechargeable lithium-aluminum/iron sulfide cells using the LiCI-KCl eutectic (44 wt % LiCI) electrolyte were developed. The utilization of these cells at high discharge rates was hindered by the formation of J phase LiK6FeS26Cl in the FeS electrodes. To overcome this problem, four engineering size cells (approximately 100 Ah theoretical capacity) were built with LiCl-rich electrolyte (54 wt % LiCl). At the 4-h rate, the utilization of these cells was improved by more than 40% over that of cells containing the eutectic electrolyte.

N80-15615# Department of Energy, Washington, D. C. ALL-UNION SCIENTIFIC AND TECHNICAL CONFERENCE ON USE OF THE EARTH'S HEAT FOR THE PRODUCTION OF ELECTRIC POWER - SUMMARY OF REPORTS

Oct. 1978 138 p refs Transl. into ENGLISH of Vsesoyuznoye Naucho-Tekhnicheskoye Soveshchaniye. Ispol'zovaniye tepla zemli dlya Proizvodstva Electroenergii (Tezisy Dokladov), USSR Ministry of Power and Electrification, 1975 186 p. Conf. held at Moscow, 10-14 Dec. 1975

(CONF-751270-Summ) Avail: NTIS HC A07/MF A01

The use and effectiveness of geothermal energy for producing electric power is discussed. Topics include the operation of geothermal electric stations and power plants, systems for the extraction of heat from the Earth's crust, drilling of geological prospecting boreholes for steam, and geophysical methods for monitoring the parameters of underground heat boilers. A.W.H.

N80-15616# Colorado State Univ., Fort Collins. Solar Energy Applications Lab

PERFORMANCE OF RESIDENTIAL SOLAR HEATING AND COOLING SYSTEM WITH FLAT-PLATE AND EVACUATED TUBULAR COLLECTORS: CSU SOLAR HOUSE 1

W. S. Duff, T. M. Conway, G. O. G. Loef, D. B. Meredith, and R. B. Pratt 1978 14 p refs Presented at the CCMS Meeting, Dusseldorf, W. Germany, 19 Apr. 1978

(Contract EY-76-S-02-2577)

(COO-2577-17; CONF-7804101-1) Avail: NTIS HC A02/MF A01

Performance data were procured on 47 days during operation of the flat plate collector and on 112 days when the house was heated or cooled by the evacuated tube collector system. It was concluded that the system comprising an evacuated tubular collector, lithium bromide absorption water chiller, and associated equipment is highly effective in providing space heating and cooling to a small building, that it can supply up to twice the space heating and several times the cooling obtainable from an equal occupied area of good quality flat plate collectors, and that a greater fraction of the the domestic hot water can be obtained by supplying its heat from main storage. A summary of monthly and annual energy use for space heating, domestic hot water heating, and space cooling is presented.

N80-15618# California Univ., Berkeley. Lawrence Berkeley

#### AQUIFER THERMAL ENERGY STORAGE

C. F. Tsang 1978 27 p refs Presented at the Symp. on Advanced Technol. for Storing Energy, Chicago, 10 Jul. 1978 (Contract W-7405-eng-48)

(LBL-7070; CONF-780714-2) Avail: NTIS HC A03/MF A01 The concept of thermal energy storage is examined through the storage of waste hot water from power plants or from solar energy collectors in aquifers. The hydrodynamic and thermal behaviors of the storage system are analyzed and illustrated. A computer model developed to study the physical conditions and parameters and to make realistic predictions of the energy storage and retrieval efficiencies is described.

N80-15619# Oak Ridge National Lab., Tenn.

INTERMEDIATE REPORT ON THE PERFORMANCE OF PLATE-TYPE ICE-MAKER HEAT PUMPS Progress Report

V. D. Baxter Oct. 1978 43 p refs (Contract W-7405-eng-26)

(ORNL/CON-23) Avail: NTIS HC A03/MF A01

Two ice maker heat pumps were tested and compared for the effect of harvesting scheme and evaporator plate loading on performance in both water chilling and ice making modes. The systems design of each heat pump is reported with two major differences, the type of harvest scheme employed and the evaporator and compressor size, examined for efficiency and relative performance. The effect of thermostatic type cyclic operation on performance of the pumps is investigated. A.W.H.

N80-15620# Oak Ridge National Lab., Tenn. Engineering Technology Div.

CHARACTERIZATION OF OPERATING CONDITIONS FOR GAS/WATER HEAT RECOVERY STEAM GENERATORS

R. L. Graves 13 Oct. 1978 21 p refs (Contract W-7405-eng-26)

(ORNL/TM-6622) Avail: NTIS HC A02/MF A01

The possible operating points of air/water and helium/ water steam generators are parametrically presented. Calculation procedures and a sample computer program listing are provided. Multiple saturated steam conditions are shown to be attainable with the same gas inlet and exit temperatures. Design considerations of heat transfer surface area and pumping requirements are also discussed.

#### N80-15621# Department of Energy, Washington, D. C. ENVIRONMENTAL DEVELOPMENT PLAN OCEAN THER-MAL ENERGY CONVERSION

Aug. 1979 53 p

(DOE/EDP-0034) Avail: NTIS HC A04/MF A01

The present status and goals of the OTEC program are described, and potential environmental, health, safety, and sociolegal-economic impacts relevant to the program are identified. A management plan is presented for conducting and coordinating environmental research in concert with the development of appropriate technology. Five major classes of environmental concerns associated with the deployment and operation of an OTEC system are discussed. They are changes in oceanic properties, chemical pollution, operation of a manned platform, legal and institutional matters, and secondary impacts associated with site selection, construction, and operation of OTEC plants.

N80-15622# Oklahoma Univ., Norman.

CRITICAL SPEEDS AND NATURAL FREQUENCIES OF RIM-TYPE COMPOSITE-MATERIAL FLYWHEELS

C. W. Bert, T. L. C. Chen, and C. A. Kocay Sep. 1978 108 p. refs

(Contract EY-76-C-04-0789)

(SAND-78-7049) Avail: NTIS HC A06/MF A01

An analytical investigation conducted on a 0.56 kWh composite material flywheel energy storage system for application in hybrid automotive vehicles is reported. The investigation calculated the critical speeds and natural frequencies of a rim type flywheel which is flexibly mounted on a finite hub, which in turn, is attached to an elastic shaft. The specific modes covered include whirling, torsional, and axial modes involving band, shaft and support flexibilities and in-plane bending, combined out of plane bending/twisting, and extensional modes of the flywheel rim. The phenomena occurring during acceleration through critical speeds and the effect of creep stress relaxation on the supporting bands are examined.

N80-15623# Sandia Labs., Albuquerque, N. Mex. OVERVIEW OF FLYWHEEL ENERGY STORAGE COMPO-**NENT DEVELOPMENT** 

R. O. Woods [1978] 7 p refs Presented at 1st Inform. Exchange Conf., Luray, Va. 24 Oct. 1978

(Contract EY-76-C-04-0789)

(SAND-78-1999C; CONF-781046-8)

HC A02/MF A01

NTIS Avail:

Composite flywheel design, bearings, shaft seals, and general vacuum technology are reviewed.

N80-15624# Sandia Labs., Albuquerque, N. Mex. SANDIA COMPOSITE-RIM FLYWHEEL DEVELOPMENT

E. D. Reedy, Jr. [1978] 13 p refs Presented at 1st Inform. Exchange Conf., Luray, Va., 24 Oct. 1978

(Contract EY-76-C-04-0789)

CONF-781046-3) (SAND-78-1865C:

Avail: NTIS

HC A02/MF A01

A series of flywheel spin tests and the status of the rotor development program are discussed. Two designs incorporating a 20 in. OD graphite/epoxy rim were tested. Each design utilized a different method of attaching the rim to an aluminum hub with Kevlar 49/epoxy bands. Data on rotor performance, dynamics, and failure modes are presented.

N80-15625# Oak Ridge National Lab., Tenn.

#### ANALYSIS OF POTENTIAL IMPLEMENTATION LEVELS FOR WASTE HEAT UTILIZATION IN THE NUCLEAR POWER INDUSTRY

M. Olszewski and H. R. Bigelow Oct. 1978 34 p refs (Contract W-7405-eng-26)

(ORNL/TM-63-2) Avail: NTIS HC A03/MF A01

An assessment of land available at nuclear power stations was performed in an effort to determine the limitations land availability would impose on the implementation of reject heat utilization systems. A waste heat utilization factor was defined for all operating and planned nuclear power stations. This factor is the percentage of the station's reject heat that could be utilized on the land available for such use at the site. An estimate of the potential for implementation at fossil stations was per-DOF

N80-15626# California Univ., Livermore. Lawrence Livermore

#### ENVIRONMENTAL OVERVIEW OF GEOTHERMAL DEVEL-OPMENT: THE GEYSERS-CALISTOGA KGRA. VOLUME 1: ISSUES AND RECOMMENDATIONS

D. L. Ermak and P. L. Phelps 4 Oct. 1978 21 p refs (Contract W-7405-eng-48)

(UCRL-52496-Vol-1) Avail: NTIS HC A02/MF A01

Priorities of the impacts of geothermal resource development on local communities and environments are assessed and recommendations are given particularly in the hydrogen sulfide emissions from the geysers steam evolved. Other high priority needs are related to controlling noise from geothermal development, land-use conflicts between geothermal and other potential uses, impacts from landslide and soil erosion induced by geothermal development and protection of rare and endangered species in the region.

N80-15627# Sandia Labs., Albuquerque, N. Mex. PULSAR: AN INDUCTIVE PULSE POWER SOURCE

E. C. Cnare, W. P. Brooks, and M. Cowan 1979 4 p Presented at the Pulsed Power Conf., Lubbock, Tex., 12 Jun.

(Contract EY-76-C-04-0789)

(SAND-79-1246C; CONF-790622-19)

HC A02/MF A01

Avail: NTIS

The pulsar concept of inductive pulsed power source which uses a flux compressing metallic or plasma armature rather than a fast opening switch to transfer magnetic flux to a load is discussed. The inductive store is a relatively unsophisticated do superconducting magnet. The development of much faster plasma armatures for use in larger systems of one and two meters diameter is examined. Techniques used to generate the required high magnetic Reynolds number flow are described. DOE

N80-15628# Hawaii Univ. at Manoa, Honolulu. Hawaii Natural Energy Inst.

#### SOLAR/WIND HANDBOOK FOR HAWAII: TECHNICAL APPLICATIONS FOR HAWAII, THE PACIFIC BASIN AND SITES WORLDWIDE WITH SIMILAR CLIMATIC CONDI-

W. Falicoff, G. Koide, and P. Takahashi May 1979 647 p refs Prepared jointly with Hawaii Univ. Hilo and Hawaii State Dept. of Planning and Economic Development (Contract W-7405-eng-48)

(UCRL-15053) Avail: NTIS HC A99/MF A01

The techniques are presented for using solar energy and wind power in applications such as domestic hot water production, space cooling, process heating, and power generation. The findings and information are based upon conditions in Hawaii, but can apply to locations with similar environments such as the entire Pacific area. DOF

N80-15629# Argonne National Lab., III.

#### TURBOMACHINERY OPTIONS FOR AN UNDERGROUND PUMPED HYDROELECTRIC STORAGE PLANT

C. A. Blomquist, S. W. Tam, and A. A. Frigo 1979 11 p refs Presented at 14th Intersoc. Energy Conversion Conf., Boston, 5 Aug. 1979

(Contract W-31-109-eng-38)

(CONF-790803-50) Avail: NTIS HC A02/MF A01

Various turbomachinery options for underground pumped hydroelectric storage (UPHS) plants are reviewed. Current technology indicates that the maximum head for single-stage. reversible. Francis-type pump turbines is 625 m: for separate, single-stage, Francis-type turbines and multistage pumps, 672 m; for tandem units consisting of separate multijet impulse turbines and multistage pumps, 1440 m; and for multistage, reversible, ungated Francis-type pump turbines, 1290 m. Engineering design studies indicate that heads for the single-stage reversible units could be extended to 1000 m, developing 500 MW output per unit. The studies also indicate that two stage, reversible, Francis-type pump turbines with adjustable wicket gates could be developed for power outputs up to 500 MW at operating heads as high as 1500 m. DOE

N80-15630# Department of Energy, Washington, D. C. Office of Consumption Data System.

#### FEDERAL ENERGY DATA SYSTEM (FEDS) STATISTICAL SUMMARY UPDATE

J. P. Galliker Jul. 1979 854 p

(DOE/EIA-0192) Avail: NTIS HC A99/MF A01

The Federal energy data system statistical summary update displays state level energy consumption by major economic sectors for the years 1960 to 1977. The data are displayed in both calorific units and physical units. Fuels are divided into categories. i.e., highway gasoline in the transportation sector; kerosene in the residential sector; coking coal and petroleum coke in the industrial sector; and diesel in the transportation sector. DOF

N80-15631# Department of Energy, Washington, D. C. International Energy Analysis Div.

### ENERGY DEMAND IN THE DEVELOPING COUNTRIES

J. Child and Mark Rodekohr Apr. 1979 20 p refs (DOE/EIA-0183/10) Avail: NTIS HC A02/MF A01

An analysis of the demand for energy in developing countries is summarized. A model of developing country energy demand which is econometric in nature and is designed to forecast demand for oil, coal, and natural gas - excluding non-fossil fuels is described. The model and data used in the analysis are defined. and results generated with the 1978 model and the 1977 model based on identical sets of assumptions are compared.

### N80-15633# SRI International Corp., Menlo Park, Calif. ECONOMIC IMPACTS OF ENERGY CONSERVATION AND RENEWABLE ENERGY SOURCES

R. C. Carlson 1979 21 p refs (Contract W-7405-eng-48)

(UCRL-15087) Avail: NTIS HC A02/MF A01

An overall theory of the economic impacts of alternative energy developments is developed. Literature on such impacts is reviewed and economic impacts of alternative energy development scenarios for California are projected. Economic impacts include changes in aggregate employment, unemployment, real income, and real output. Changes in each of these measures are analyzed in circumstances that include incentives or mandates for increased energy conservation or use of renewable energy resources.

DOE

N80-15634# Brookhaven National Lab., Upton, N. Y.
MARKAL: A MULTIPERIOD LINEAR-PROGRAMMING
MODEL FOR ENERGY SYSTEMS ANALYSIS (BNL VERSION)

H. Abilock, C. Bergstrom, J. Brady et al. 1979 23 p. refs Presented at the Energy Systems Analysis Intern. Conf., Dublin, 9 Oct. 1979

(Contract EY-76-C-02-0016)

(BNL-26390; CONF-791007-3)

HC A02/MF A01

Avail: NTIS

A computer program, MARKAL, a demand-driven, multiperiod, LP model of energy supplies and demands, is described. Its intended application is at the level of an entire nation. MARKAL takes exogenously supplied energy-demand figures and determines the optimal energy-supply and end-use-device network that can meet the demand. The computer systems design and requirements are discussed. The use of MARKAL for assessing the merits of energy technologies and characterizing their likely technological and economic characteristics is examined.

N80-15635# Lincoln Lab., Mass. Inst. of Tech., Lexington.
FLYWHEEL ENERGY STORAGE AND CONVERSION
SYSTEM FOR PHOTOVOLTAIC APPLICATIONS

A. R. Millner 1979 15 p. Presented at the Intern. Assembly on Energy Storage, Dubrovnik, Yugoslavia, 27 May 1979 (Contract EY-76-C-02-4094)

(COO-4094-48; CONF-790515-4)

Avail: NTIS

HC A02/MF A01

The design of a flywheel energy storage and conversion system is examined. The system serves as an interface between a solar photovoltaic array and an ac load, providing output waveform regulation as well as energy storage. Characteristics of the system include magnetic bearings, an ironless armature motor generator, and a low cost flywheel rotor. An economic analysis is presented.

N8U-15637# Sandia Labs., Älbuquerque, N. Mex. Systems Analysis Div.

SOLAR MECHANICAL ENERGY STORAGE PROGRAM OVERVIEW AND SYSTEMS ANALYSIS RESULTS

B. C. Caskey 1979 6 p refs Presented at the Mechanical and Mag. Energy Storage Contractor, Washington, D.C., 19 Aug. 1979

(Contract EY-76-C-04-0789)

(SAND-79-1642C; CONF-790854-1) Avail: NTIS

HC A02/MF A01

The mechanical energy storage modes that are used in conjunction with solar inputs supplying small to intermediate loads are evaluated. Energy storage systems considered are flywheels, a pneumatic energy storage system, and low head pumped hydro storage. The development of low cost stationary flywheel technology is discussed. A computer program for systems analysis of the energy storage systems is described which uses economic parameters, system size, collector output and load demand based on hourly weather data for input data. A.W.H.

N80-15638# Lincoln Lab., Mass. Inst. of Tech., Lexington.
DESCRIPTION OF THE MIT/LINCOLN LABORATORY
PHOTOVOLTAIC SYSTEMS TEST FACILITY

S. B. Sacco 30 Jun. 1979 25 p ref (Contract EY-76-C-02-4094)

(COO-4094-41) Avail: NTIS HC A02/MF A01

The test facility and the mechanical and electrical interfaces for items to be tested are described. These interfaces include those for the solar array, batteries, inverters, and for backup dc power sources. Permanent power and instrumentation wiring at the facility are depicted in sufficient detail to permit test plans to be drawn up from these descriptions.

N80-15639# Midwest Research Inst., Golden, Colo. Solar Energy Research Inst.

### ROLE OF THE GOVERNMENT IN THE DEVELOPMENT OF SOLAR ENERGY

M. D. Yokell 1979 29 p refs Presented at the Ann. Meeting Assoc. for the Advan. of Sci., Houston, Tex., 4 Jan. 1979 (Contract EG-77-C-01-4042)

(SERI/TP-52-138; CONF-790122-3)

Avail:

HC AO3/MF AO1

The economic rationale for a Federal solar energy subsidy program, the type of program required, and methods for determining the proper funding level for each program are discussed. An introduction offers a brief description of solar technologies. A summary of the current Federal solar subsidy program is also provided.

DOE

N80-15640# Department of Energy, Washington, D. C. Office of Leasing Policy Development.

### FEDERAL LEASING AND OUTER CONTINENTAL SHELF ENERGY PRODUCTION GOALS

Jun. 1979 426 p refs

(DOE/RA-0037) Avail: NTIS HC A19/MF A01

The growing U.S. dependence on foreign energy sources, coupled with a limited mid-term supply of newer energy sources, has focused national energy policy on expanding domestic production of fossil fuels. Considering that up to 60 percent of the nation's undiscovered energy resources may be located on the Outer Continental Shelf (OCS) and that new opportunities exist for redirecting Federal management of OCS lands, the energy potential of the OCS was assessed. Oil and natural gas production goals for the OCS were established and are presented. The goals were determined by adding the production from existing OCS leases and estimated production from lease sales appearing on proposed lease schedules.

N80-15641# Sandia Labs., Albuquerque, N. Mex. System Analysis Div.

### SOLAR ENHANCED OIL RECOVERY: AN ASSESSMENT OF ECONOMIC FEASIBILITY

K. D. Bergeron May 1979 51 p refs (Contract EY-76-C-04-0789) (SAND-79-0787) HC A04/MF A01

An assessment of the potential economic viability of solar enhanced oil recovery (EOH) is presented. The technical and physical aspects of the merging of solar energy with EOR are examined. A cost model of the system based on a number of assumptions including operating lifetime, nonsteam costs, tax credits, and fuel prices is presented.

A.W.H.

N80-15642# Electric Power Research Inst., Palo Alto, Calif. Fossil Fuel and Advanced Systems Div.

#### FEASIBILITY STUDY FOR ENHANCING THE DEVELOP-MENT OF FUSION ENERGY

N. A. Amherd, ed. and J. H. Vanston, ed. Mar. 1979 158 p refs

(EPRI-ER-778-SR) Avail: NTIS HC A08/MF A01

Areas of work, as well as contributions to fusion program planning are presented. The feasibility of a comprehensive project addressing programmatic issues was investigated. A historical examination of the commercial development of selected large scale technologies, together with the specification of the methods for examining the compatibility of the fusion program with the electric utilities needs, and a plan for a detailed study of the safety and environmental issues of fusion power is given. Summaries of interviews with several people who have played key roles in the management of high technology development programs are reported.

N80-15643# Los Alamos Scientific Lab., N. Mex.
WATER USE ALTERNATIVES FOR NAVAJO ENERGY
PRODUCTION

D. Abbey 1979 17 p refs Presented at the Navajo Energy and Environ. Technol. Training Conf., Tsaile, Ariz., 30 May 1979

(Contract W-7405-eng-36)

(LA-UR-79-1598; CONF-790550-3)

Avail: NTIS

The technologies and estimate costs (\$/af saved) for those activities for which water conservation is feasible are described. The range of water requirements compared to energy and water resource estimates, alternative criteria for energy and water resource management are discussed: (1) promote energy activities with the lowest minimum water requirements: (2) require industry to use low quality water resources and the most effective water conservation technology; and (3) maximize the economic return on Navajo water requirces (\$/af consumed).

N80-15645# New Mexico Energy Inst., Las Cruces. USE OF GEOTHERMAL ENERGY FOR DESALINATION IN NEW MEXICO: A FEASIBILITY STUDY Final Report, 7 Jan. 1977 - 30 May 1979

Lokesh Chaturvedi, Conrad G. Keyes, Jr., Chandler A. Swanberg, Yash P. Gupta, Marion Michael Hightower, and Ray Jay Davis (Arizona Univ.) Jun. 1979 142 p refs (PB-299271/7; NMEI-42) Avail: NTIS HC A07/MF A01 CSCL

The availability versus the requirements of water in the New Mexico area is examined. The use of geothermal energy for the desalinization of water in order to increase the water supply to the area is studied. Geothermal desalinization technology is reported along with potential geothermal desalinization sites. Saline and geothermal aquifer well fields design are described. Environmental, legal, and institutional considerations are outlined AWH

N80-15648# Applied Physics Lab., Johns Hopkins Univ., Laurel,

ENERGY PROGRAM AT THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY Quarterly Report, Apr. -Jun. 1979

W. J. Toth, R. W. Henderson, W. F. Barron, A. C. Goodman, and C. S. Leffel, Jr. Jul. 1979 46 p refs (PB-310245/7; APL/JHU/EQR-79-2) HC A03/MF A01 CSCL 10A

Topic areas covered include: geothermal energy development planning, hydroelectric power development, energy conversion and storage techniques, power plant site evaluation, and ocean thermal energy conversion development.

N80-15668# California Univ., Livermore. Lawrence Livermore

IDENTIFICATION OF ENVIRONMENTAL CONTROL TECH-NOLOGIES FOR GEOTHERMAL DEVELOPMENT IN THE IMPERIAL VALLEY OF CALIFORNIA

D. F. Snoeberger and J. H. Hill 5 Oct. 1978 33 p refs (Contract W-7405-eng-48)

(UCRL-52548) Avail: NTIS HC A03/MF A01

Control technologies to manage environmental impacts from geothermal developments in California's Imperial Valley are discussed. Included are descriptions of methods for managing land subsidence by fluid injection; for preventing undesirable induced seismicity or mitigating the effects of seismic events; for managing liquid wastes through pretreament or subsurface injection; for controlling H2S by dispersal, reinjection, and chemical treatment of effluents; and for minimizing the impact of noise from power plants by setting up buffer zones and exclusion areas.

N80-15669# Department of Energy, Washington, D. C. ENVIRONMENTAL DEVELOPMENT PLAN: ELECTRIC **ENERGY SYSTEMS** 

Aug. 1979 58 p refs (DOE/EDP-0038) Avail: NTIS HC A04/MF A01

The Electric Energy Systems (EES) program is discussed. The program includes the following projects: electric field effects. underground transmission, high-voltage dc technology, advanced transformer and generator concepts, compact stations, and dispersed storage and generation. The projects were examined to identify their environmental impact and the resulting concerns. Management plans for meeting the environmental requirements are identified, along with the organizations responsible for managing the environmental research associated with the EES DOF program.

N80-15670# Oak Ridge Associated Universities, Tenn. DEVELOPMENT OF THE ROCKY MOUNTAIN ENERGY AND ENVIRONMENTAL TECHNOLOGY CENTER: A PRE-LIMINARY ANALYSIS

T. McKinley, J. Doggett, and J. Little Jun. 1979 34 p (Contract EY-76-C-05-0033)

(ORAU-158) Avail: NTIS HC A03/MF A01

The events that contributed to the evolution of RME and ETC are emphasized. All of the organizations which have aided the development of RME and ETC are identified. The private and shared agendas of each are explored. A historical synopsis is presented to provide a chronological time frame for program development. Training programs in machining, word processing. and chemical operating are described. Characteristics of the total 79 trainees enrolled are presented; terminations and placements to date are cited. RME and ETC represents one coordinated approach to industry-based CETA skills training. The key elements that contributed to the current RME and ETC are identified. Recommendations are offered for present and future program implementation.

N80-15676# Hittman Associates, Inc., Columbia, Md. ENVIRONMENTAL ASSESSMENT REPORT: SOLVENT REFINED COAL (SRC) SYSTEMS Final Report, May 1978 -May 1979

K. J. Shields, H. T. Hopkins, E. E. Weir, and Carolyn Thompson Jun. 1979 847 p

(Contract EPA-68-02-2162)

(PB-300383/7; EPA-600/7-79-146) HC A99/MF A01 CSCL 13B

Air emissions, water effluents, solid wastes, toxic substances, control/disposal alternatives, environmental regulatory requirements, and environmental effects associated with solvent refined coal (SRC) systems are evaluated. The SRC-1(solid product) and SRC-11(liquid product) variations of solvent refining are considered in terms of a hypothetical facility to produce 7950 cum/day liquefied coal products. Control and disposal options are surveyed to determine their applicability to subject discharges. Potentially applicable regulatory requirements are reviewed and compared to estimated after-treatment discharge levels. Analyses indicate that solid wastes produced by SRC systems are the greatest source of current environmental concern. GRA

N80-15681# Mathtech, Inc., Princeton, N. J. EVALUATION OF THE ENVIRONMENTAL EFFECTS OF WESTERN SURFACE COAL MINING, VOLUME 1 Final Report, Jun. 1975 - Jun. 1977

Frank Cook May 1979 154 p refs (Contract EPA-68-03-2226)

NTIS (PB-300375/3; EPA-600/7-79-110-Vol-1) Avail: HC A08/MF A01 CSCL 13B

The methods presently used for surface mining of coal in the western United States are described and evaluated. The effects that use of those methods have on the environment are described and ways in which the methods might be altered to reduce both long term and short term environmental damage are presented.

N80-15682# PEDCo-Environmental, Inc., Cincinnati, Ohio. EPA UTILITY FGD (FLUE GAS DESULFURIZATION)

SURVEY: DECEMBER 1978 - JANUARY 1979
M. Smith, M. Melia, T. Koger, R. McKibben, and J. Uihlein May 1979 453 p refs

(Contract EPA-68-02-2603)

(PB-299399/6; EPA-600/7-79-022C) NTIS HC A20/MF A01 CSCL 10B

The scope of design data for operating flue gas desulfurization (FGD) systems is expanded, section formats are revised, and a new section includes operational particulate scrubbers. Information contributed by the utility industry, process suppliers, regulatory agencies, and consulting engineering firms is summarized. Systems are tabulated alphabetically by development status (operational, under construction, or in planning stages), utility company, process supplier, process, waste disposal practice, and regulatory class. Data on system design, fuel sulfur content, operating history, and actual performance are presented as well as unit by unit

dependability parameters. Problems and solutions associated with the boilers and FGD systems are considered. Process flow diagrams and FGD system economic data are appended. Current data show 46 operating FGD systems, 45 systems under construction, and 67 planned units. Projected 1988 FGD capacity is about 70,000 MW. GRA

N80-15685# Environmental Monitoring and Support Lab., Las

WESTERN ENERGY SULFATE/NITRATE MONITORING NETWORK Progress Report, Jan. 1975 - Jun. 1978

Michael J. Pearson, Marc Pitchford, and Robert Snelling Mar. 1979 50 p refs

(PB-299238/6; EPA-600/7-79-074) HC A03/MF A01 CSCL 13B

NTIS

Little sulfate-nitrate data are available to establish a baseline and evaluate the impact of coal utilization. The number of locations monitoring sulfate and nitrate in the Western Energy Resource Development Area was increased by augmenting the existing particulate sampling networks. To evaluate and improve the quality of data obtained, a quality assurance program was established. The data reported thus far indicate generally low values in this area. Typically, sulfate values are less than 6 micrograms per cubic meter (microgram/cu m) and nitrate values are less than 3 microgram/cu m. GRA

N80-15687# Acurex Corp., Mountain View, Calif. Energy and Environmental Div.

PILOT SCALE EVALUATION OF NOx COMBUSTION CONTROL FOR PULVERIZED COAL, PHASE 2 Final Report, Jun. 1973 - Jan. 1978

R. A. Brown, J. T. Kelly, and Peter Neubauer Jun. 1979 321 p

(Contract EPA-68-02-1885)

(PB-299325/1: EPA-600/7-79-132; Rept-78/293) NTIS HC A14/MF A01 CSCL 13B

Advanced NOx control techniques were investigated on a pilot scale test facility firing pulverized coal. Baseline and control technology tests were performed on three coal types over a range of parameters. First and second stage parameters investigated include stoichiometry, excess air, temperature, mixing residence time, and coal composition. A minimum NO level was achieved at a stoichiometric ratio between 0.75 and 0.85, depending on fuel and furnace configuration, and the longer first-stage residence times gave lower stack NO levels. To obtain NO levels below 150 ppm, first-stage residence times of up to 3 seconds were required. Second-stage parameters were found to be of second-order importance. GRA

N80-15688# Clemson Univ., S.C. Dept. of Mechanical Engineering.

ENERGY CONSERVATION THROUGH POINT SOURCE RECYCLE WITH HIGH TEMPERATURE HYPERFILTRATION Final Report, Jul. 1975 - Dec. 1978

J. L. Gaddis, C. A. Brandon, and J. J. Porter Jun. 1979 187 p refs

(Grant EPA-R-803875)

(PB-299183/4; EPA-600/7-79-131) Avail: NTIS HC A09/MF A01 CSCL 13B

The reuse of water, energy, and chemicals in the textile industry can be best achieved if separations are applied to individual point-source streams rather than to total-plant mixed effluents. Five wet processes comprise a large fraction of total textile operations and require over half of the total energy used. Each process effluent was sampled and analyzed to determine which membrane, hyperfiltration or ultrafiltration, should be used. Two small equipment skids allowed membrane operation at the plant sites. The permeable water in each case was reusable. Estimates of energy recoverable per mass of cloth processed (kJ/kg) for each operation are: rope preparation, 2646, open-width preparation, 5766; continuous dyeing, 2449; atmospheric beck dyeing, 20115; high-pressure dyeing, 3910; and low-pressure beck dyeing, 1964.

N80-15691# Dravo Corp., Pittsburgh, Pa.

MANAGEMENT OF COAL PREPARATION FINE WASTES WITHOUT DISPOSAL PONDS Final Report, Jul. 1977 -Jun. 1978

D. C. Hoffman, R. W. Briggs, and S. R. Michalski Jan. 1979 63 p refs

(Contract DI-G-ET-79-11270)

(PB-299100/8; EPA-600/7-79-007; FE-11270-1) Avail: NTIS HC A04/MF A01 CSCL 13B

The physical/chemical properties of a diverse sampling of fine coal refuse were investigated along with the effect of chemical stabilization. It was shown that chemical stability can be employed to drastically improve some physical/chemical properties of the fine refuse for better handling and disposal. The proprietary chemical, Calcilox (Trademark) additive, is the most effective over the range of samples tested. Portland Type 1 cement is also effective but greatly influenced by waste solids concentration. The final chemical tested, lime, is inferior to the other two chemicals and generally ineffective in improving the fine waste's physical/chemical properties.

N80-15699# Environmental Protection Agency, Ann Arbor, Mich. Technology Assessment and Evaluation Branch.

INVESTIGATION OF THE EFFECTS OF THE INSTALLATION OF AN OXIDATION CATALYST ON A DIESEL POWERED VEHICLE

Edward Anthony Barth Mar. 1979 20 p (PB-299928/2; TAEB-79-7) Avail: NTIS HC A02/MF A01 CSCL 13B

The use of an oxidation catalyst in diesel powered vehicles was investigated for it's effects on gaseous and particulate emissions, fuel economy, and vehicle performance.

N80-15758# National Oceanic and Atmospheric Administration, Boulder, Colo. Atmospheric Physics and Chemistry Lab METEOROLOGICAL EFFECTS OF OIL REFINERY OPERA-TIONS IN LOS ANGELES

R. F. Pueschel, F. P. Parungo, E. W. Barrett, D. L. Wellman, and H. Proulx Jul. 1979 68 p refs (PB-300720/0; NOAA-TM-ERL-APCL-22; NOAA-79081403)

Avail: NTIS HC A04/MF A01 CSCL 04B From airborne in situ measurements of gases and aerosol size distributions and from post-flight chemical analyses of sample particles, it was found that oil refinery operations in southern Los Angeles can modify clouds in the vicinity. The refinery effluents

increased the concentration of aerosols in the size range between 0.05 micro m and 23.5 micro m particle radius. Furthermore, although the sulfate aerosol in the area has a stabilizing effect on clouds, the clouds downwind of the refineries were found to

N80-15893# Department of Energy, Washington, D. C. Office of Nuclear Energy Programs.

FISSION ENERGY PROGRAM OF THE U.S. DEPARTMENT OF ENERGY, FY 1980

Apr. 1979 315 p refs (DOE/ET-0089) Avail: NTIS HC A14/MF A01

be destabilized by the nitrate aerosol.

The fission energy program and program objectives are discussed. The program management and program strategy are described and the program budget is presented. The topics in the program which are discussed include thermal reactor technology, advanced isotope separation technology, water cooled breeders, gas cooled breeders, and space power applications.

N80-15897# Brookhaven National Lab., Upton, N. Y. **FUSION ENERGY FOR HYDROGEN PRODUCTION** 

J. A. Fillo, J. R. Powell, M. Steinberg, R. Benenati (N.Y. Polytechnic Inst.), V. Dang (Burns and Roe), S. Fogelson (Burns and Roe), H. Isaacs (Burns and Roe), H. Kouts (Burns and Roe), M. Kuschner (Burns and Roe), and O. Lazareth 1978 7 p refs Presented at the 10th Symp. on Fusion Technol., Padova, Italy, 4-8 Sep. 1978

(Contract EY-76-C-02-0016)

(BNL-24906; CONF-780953-6)

Avail:

NTIS

HC A02/MF A01

The use of thermonuclear fusion for the production of hydrogen from water is described. A conceptual design coupling fusion with high temperature electrolysis for the production of hydrogen is examined Elements in the systems' design discussed are the fusion blanket, the high temperature electrolyzers, the coupling of the fusion and electrolyzer systems, and the power conversion

N80-15908# Sandia Labs., Albuquerque, N. Mex. PULSED POWER FOR FUSION

T. H. Martin 1979 7 p refs Presented at the Pulsed Power Conf., Lubbock, Tex., 12 Jun. 1979

(Contract EY-76-C-04-0789)

(SAND-79-0933C; CONF-790622-7)

NTIS Avail:

HC A02/MF A01

Research conducted in support of the pulsed power approach to fusion resulted in the creation of an extendable accelerator technology that could be used at levels up to 100 TW and 30 MJ. These types of accelerators are efficient (about 30 to 50 percent) and for ion outputs in the 1 to 3 MJ range they may provide an approach to economically feasible 200 MW electric power reactor. Repetitive pulsing of the pulsed power system for > 10 to the 9th power short lifetimes must be solved along with ion beam concentration, bunching, and drifting.

N80-15933# California Univ., Livermore. Lawrence Livermore Lab.

SUPERCONDUCTIVITY FOR MIRROR FUSION

C. D. Henning Sep. 1978 23 p Presented at Appl. Superconductivity Conf., Pittsburgh, 25 Sep. 1978

(Contract W-7405-eng-48)

CONF-780952-39) NTIS (UCRL-81693;

HC A02/MF A01

The use of mirror magnets in fusion reactors due to the high and steady magnetic fields they generate and the capacity to negate pulsed field is discussed. The past and present development of mirror magnets is reviewed and mirror fusion experiments are reported.

N80-15942# Argonne National Lab., III. TECHNICAL SUPPORT FOR OPEN-CYCLE MHD PROGRAM Progress Report, Apr. - Jun. 1978

D. H. Bomkamp, ed. Jul. 1979 76 p ref

(Contract W-31-109-eng-38)

(ANL/MHD-78-11) Avail: NTIS HC A05/MF A01

The analysis of a magnetohydrodynamic/steam system is discrssed. The major components of the system are examined including the combustor, the nozzle channel diffuser, the slag separator, and the high temperature air heaters. The development of a model for the heat transfer and slag flow and a model to estimate the effective emissivities and absorptivities of coal combustion gas containing slag droplets are discussed. A.W.H.

N80-15946# General Accounting Office, Washington, D. C. Energy and Minerals Div.

FUSION: A POSSIBLE OPTION FOR SOLVING LONG-TERM ENERGY PROBLEMS

28 Sep. 1979 60 p

(PB-300692/1; EMD-79-27) Avail: NTIS HC A04/MF A01

The concepts of nuclear fusion and the nuclear fusion reactor are reviewed. The topics addressed are plasma confinement, fusion-fission hybrid reactors, and thermonuclear power genera-A.W.H.

N80-15992# Commerce Dept., Washington, D.C. Industry and Trade Administration.

PETROCHEMICALS: THEIR ECONOMIC SIGNIFICANCE IN THE DOMESTIC ECONOMY

Harry Pfann Jul. 1979 91 p refs (PB-299733/6) Avail: NTIS HC A05/MF A01 CSCL 05C The economic significance of petrochemicals within the domestic economy is considered along with their importance in U.S. export trade and their requirements for energy and feedstocks. The importance of fuels and of feedstocks to the industry is noted and data are presented on the quantity of hydrocarbons which are used by the industry for both feedstocks and as energy.

N80-15993# Department of Energy, Washington, D. C. Office of Analytical Services.

REPORT TO CONGRESS ON THE ECONOMIC IMPACT OF ENERGY ACTIONS AS REQUIRED BY PUBLIC LAW 93-275. SECTION 18-D

Sep. 1978 198 p

(DOE/PE-0007) Avail: NTIS HC A09/MF A01

Economic impact analyses are summarized for: (1) two regulatory changes pertaining to crude oil production in California: (2) a change in price regulations for resale of crude oil; and (3) energy efficiency targets for 13 appliances. A recommendation is presented for Federal Programs of employment or economic assistance to minimize the effect of energy shortages or energy actions.

N80-15994# Committee on Science and Technology (U. S.

TOWARD THE ENDLESS FRONTIER: HISTORY OF THE COMMITTEE ON SCIENCE AND TECHNOLOGY 1959 1979

Ken Hechler 1980 1107 p refs (GPO-35-120) Avail: SOD HC

The history of the Committee on Science and Technology is reviewed from its beginning in 1959 through the year 1979. Topics include space missions, space science, international scientific cooperation, energy technology, aeronautics and transportation, and natural resources and the environment.

A.W.H.

N80-15995# California Univ., Livermore. Lawrence Livermore Lab

ENERGY STORAGE SYSTEM FOR AUTOMOBILE PROPUL-SION, 1978 STUDY. 2: DETAILED REPORT

E. Behrin, C. J. Anderson, H. Bomelburg, M. Farahat, H. C. Forsberg, C. L. Hudson, B. C. Kullman, L. G. O'Connell, G. Strickland, and W. J. Walsh 15 Dec. 1978 294 p refs (Contract W-7405-eng-48) (UCRL-52553-Vol-2) Avail: NTIS HC A13/MF A01

The results for FY 1978 of a national, multilaboratory study of energy storage propulsion systems for automobiles are presented including an evaluation of how changing the relationship between specific peak power and specific energy affects electric vehicle performance. Also included are an update of previous results based on new information obtained from ongoing research and development programs, as well as the results of a national energy impact and market penetration analysis of representative future energy storage vehicles.

N80-16004# National Bureau of Standards, Washington, D.C. National Engineering Lab.

INTERNATIONAL ACTIVITIES: THE FISCAL YEAR 1978 SURVEY OF INTERNATIONAL PROGRAMS AT NEL

Samuel Kramer and Michael Olmert Aug. 1979 122 p (PB-300491/8; NBSIR-79-1792) Avail: HC A06/MF A01 CSCL 05A

An international survey of engineering research activities is presented. Production engineering, communications, electron devices, fiber optics, ergonomics, housing and construction, fire safety engineering, materials engineering, cryogenics, alternative

energy sources, electron microscopy, and superconductors are M.G. included. N80-16022# National Research Council of Canada, Ottawa

(Ontario). Div. of Mechanical Engineering. BULLETIN OF THE DIVISION OF MECHANICAL ENGINEER-ING AND THE NATIONAL AERONAUTICAL ESTABLISH-MENT Quarterly Report, 1 Apr. - 30 Jun. 1979

30 Jun. 1979 103 p (AD-A074885: DME/NAE-1979-2) HC A06/MF A01 CSCL 01/3

Avail: NTI

Progress in research applicable to aeronautics is summarized. Specific attention is given to the development of a minicomputer based controller designed for gas pipeline station control. The role of computer models and simulation techniques is emphasized. A railway switch car designed to operate in snow and ice is also described. Design modifications recommended to improve the mechanical performance and endurance of the switch are included.

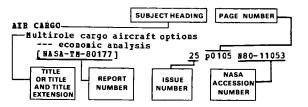
J.M.S.

## SUBJECT INDEX

#### ENERGY / A Continuing Bibliography (Issue 25)

**APRIL 1980** 

#### Typical Subject Index Listing



The subject heading is a key to the subject content of the document. The title or title and title extension provides the user with a brief description of the subject matter. The report number helps to indicate the type of document cited (e.g., NASA report, translation, NASA contractor report). The issue page and accession numbers are located beneath and to the right of the title e.g., 25 p0105 N80-11053 Under any subject heading the accession numbers are arranged in sequence with the IAA accession numbers appearing first.

ABLATION

Ablation of solid hydrogen in a plasma

25 p0050 A80-17218

ABSORBENTS

Hydrogen storage by use of cryoadsorbents in comparison to alternatives

25 p0042 A80-15992

ABSORBERS (ECCIPMENT)

Evlaution of performance enhancement of solar powered absorption chiller with an improved control strategy using the BNL-built hardware simulator

[BNL-26218]

25 p0162 N80-14552

ABSORBERS (MATERIALS)

Performance of silicon solar cells in front of a water absorber

25 p0019 A80-12125 Analysis of a LiCl open-cycle absorption air conditioner which utilizes a packed bed for regeneration of the absorbent solution driven by

solar heated air [COO-4546-1]

25 p0101 N80-10652

ABSORPTANCE

Textured silicon - A selective absorber for solar thermal conversion

25 p0034 A80-13980 ABSORPTION

The analysis and simulation of an open cycle absorption refrigeration system 25 p0029 A80-12825

ABSORPTION SPECTRA

Solar absorption spectra of PbS-Al and PbSe-Al systems

25 p0027 A80-12781

ABSORPTIVITY

Studies of directly absorbing fluids for mid-temperature solar thermal applications [MLM-2625-OP]
ACCELERATED LIFE TESTS 25 p0160 N80-14540

Non-sintered plastic-bonded nickel oride electrodes with open structure and their electrochemical performance

25 p0009 A80-11839

Development of an accelerated test design for predicting the service life of the solar array

at Bead, Nebraska [NASA-CR-162534]

25 p0154 N80-14483

ACCUMULATORS

High-efficiency alkaline accumulator with cadmium mass treated with oxalic acid

25 p0010 A80-11842

Plastic bonded electrodes for nickel-cadmium accumulators. I - Cadmium electrode

25 p0043 A80-16147

ACIDS

The methanol-air fuel cell - A selective review of methanol oxidation mechanisms at platinum electrodes in acid electrolytes

25 p0042 A80-16146

ACOUSTIC PROPAGATION

A pistonless Stirling engine - The traveling wave heat engine

25 p0031 A80-13011

ADHESIVE BONDING

Non-sintered plastic-bonded nickel oxide electrodes with open structure and their electrochemical performance

25 p0009 A80-11839

ADIABATIC PLOR

Performance limits for liquid-metal heat pires containing long adiabatic sections
[LA-UR-79-1241] 25 25 p0095 N80-10472

ADMIXTURES

Optimization of argon admixture in deuterium fusion with non-stationary action of plane shock vaves

25 p0007 A80-11546

ADSORPTION

Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere

25 p0085 A80-20454 Two-dimensional transient dispersion and

adsorption in porous media 25 p0108 N80-11386

Hot gas cleanup [ICTIS/TR-03]

25 p0117 N80-11647

ABRIAL BECONNAISSANCE

Residential heat loss mapping of Farmington, New Mexico using airborne thermal scanning

APRODYNAMIC DRAG

25 p0084 A80-20242

Investigation of aerodynamic drag of solar air 25 p0044 A80-16631

Reduction of aerodynamic drag and fuel consumption for tractor-trailer vehicles 25 p0046 A80-16948

Energy conservation - Aerodynamic drag reduction of intercity buses

25 p0050 A80-17227

25 p0032 A80-13116

ABRODYNAMIC STABILITY

Aeroelastic stability and response of horizontal axis wind turbine blades

ABROBLASTICITY

Aeroelastic stability and response of horizontal axis wind turbine blades

25 p0032 A80-13116

AERONAUTICAL ENGINEERING

Bulletin of the Division of Mechanical Engineering and the National Aeronautical Establishment --design of a gas pipeline station control system and a railway switch car

[AD-A074885] 25 p0182 N80-16022

ABROSOLS Western energy sulfate/nitrate monitoring network

25 p0180 N80-15685 [PB-299238/6] ARROSPACE ENGINEERING

Solar power satellite system definition study.
Volume 1: Executive summary

[ NASA-CR-160442] 25 p0167 N80-15195

ABBOSPACE ENVIRONMENTS

Space light - Space industrial enhancement of the solar option

25 p0073 A80-18797

AEROSPACE SCIENCES SUBJECT INDEX

ABROSPACE SCIENCES Toward the endless frontier: History of the	Measurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants
Committee on Science and Technology 1959 - 1979	25 p0089 A80-21010 The impact of LNG spills on the environment: A
[GPO-35-120] 25 p0181 N80-15994 ARROSPACE SYSTEMS	comparison of dispersion models and experimental
Society and Aerospace Technology Workshop, Los	data
Angeles, Calif., November 15, 1979, Proceedings	[UCHL-81812] 25 p0103 N80-10688
25 p0C37 A80-14701	Combustion of low grade coal
Space applications of superconductivity - High	[ICTIS/TR-02] 25 p0106 N80-11179
field magnets 25 p0084 180-20128	Trace elements from coal combustion: Atmospheric emissions
AEROSPACE TECHNOLOGY TRANSFER	[ICTIS/TR-05] 25 p0106 H80-11180
Modified aerospace reliability and quality	Technical assessment of thermal DeNox process
assurance method for wind turbines	for coal fired boilers
[NASA-TM-79284] 25 p0137 N80-13490	[PB-297947/4] 25 p0117 B80-11656
AGING (METALLURGY) Thermal aging characteristics of electrodeposited	Environmental assessment report: Lurgi coal gasification systems for SNG
black chrome solar coatings	[PB-298109/0] 25 p0120 B80-12204
[SAND-78-2094C] 25 p0159 N80-14527	Emissions assessment of conventional stationary
AGRICULTURE	combustion systems. Volume 1: Gas- and
Energy and economic assessment of anaerobic	oil-fired residential heating sources
digesters and biofuels for rural waste management [PB-296523/4] 25 p0094 N80-10398	[PB-298494/6] 25 p0131 N80-12637 Effects of conditioning agents on emissions from
[PB-296523/4] 25 p0094 N80-10398	coal-fired boilers: Test report no. 1
An indirect ammonia-air fuel system	[PB-299191/7] 25 p0165 N80-14590
25 p0013 A80-11868	Effects of conditioning agents on emissions from
AIR CARGO	coal-fired boilers: Test report no. 2
Multirole cargo aircraft options and configurations	[PB-299192/5] 25 p0165 N80-14591 Environmental assessment of the fluidized-bed
economic analysis [NASA-TM-80177] 25 p0105 N80-11053	combustion of coal: Methodology and initial
AIR CONDITIONING	results
Investigation of aerodynamic drag of solar air	[PB-298473/0] 25 p0165 N80-14595
heaters	Coal sulfur measurements
25 p0044 A80-16631	[PB-299575/1] 25 p0169 Na0-15294 Sulfur fixation during coal gasification
An evaluation of thermal energy storage for residential air conditioning applications	desulfurizing to reduce air pollution
[ASME PAPER 79-WA/HT-31] 25 p0071 A80-18631	[PB-301104/6] 25 p0169 N80-15296
A study of the solar LiBr dual cycle characteristics	Effects of inspection and maintenance programs on
[AIAA PAPER 80-0400] 25 p0077 A80-19327	fuel economy
MSFC solar heating and cooling high speed performance (Hisper) code validation	[PB-297583/7] 25 p0170 H80-15420 Environmental assessment report: Solvent Refined
[NASA-CR-161323] 25 p0096 N80-10604	Coal (SRC) systems
Performance monitoring of an off-peak heating and	[PB-300383/7] 25 p0179 N80-15676
cooling system utilizing thermal storage and	EPA utility FGD (Flue Gas Desulfurization) survey:
solar augmented heat pump	December 1978 - January 1979 electric power
[EPRI-ER-845] 25 p0102 N80-10662 AIR CONDITIONING EQUIPMENT	plants [PB-299399/6] 25 p0179 N80-15682
Design of 1-ton solar operated LiBr-water	Pilot scale evaluation of NOx combustion control
air-conditioning system with special reference	for pulverized coal, phase 2
to solar part	[PB-299325/1] 25 p0180 N80-15687
25 p0025 A80-12759 AIR FLOW	Management of coal preparation fine wastes without disposal ponds
Energy meter for solar air systems	[PB-299100/8] 25 p0180 N80-15691
25 p0022 A80-12609	Investigation of the effects of the installation
Modeling and experimental analysis of a fluidic	of an oxidation catalyst on a diesel powered
generator	vehicle [PB-299928/2] 25 p0180 N80-15699
[ASME PAPER 79-DET-9] 25 p0041 A80-15705 AIR POLLUTION	[PB-299928/2] 25 p0180 N80-15699 Meteorological effects of oil refinery operations
Analysis of tarry fractions in emissions resulting	in Los Angeles
from low temperature oxidation of brown coal	[PB-300720/0] 25 p0180 N80-15758
25 p0007 A80-11448	AIR QUALITY
Ambient air measurements of petroleum refinery emissions	Onleaded gasoline shortages and fuel switching - The potential impact in Southern California
25 p0018 A80-11992	25 p0004 180-11019
Measurement of gaseous hydrogen chloride emissions	Critique of the meteorological and air quality
from municipal refuse energy recovery systems in	baseline monitoring program for the prototype
the United States 25 p0019 A80-12128	oil shale leaseholds. Part A: Comments on the approach taken and recommendations for
Vehicle emissions control and its effect on engine	continuing program. Part B: Comments on the
development	data acquisition and management
25 p0037 A80-14708	[DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723
Hydrogen - The Denver story	Environmental overview of geothermal development:
25 p0038 A80-14709 Automobile transportation and the environment	The Geysers-Calistoga KGBA. Volume 1: Issues and recommendations
25 p0072 A80-18734	[UCRL-52496-VOL-1] 25 p0177 880-15626
Pollution aspects of oilfired and coalfired boilers	AIR SAMPLING
25 p0074 A80-18849	Ambient air measurements of petroleum refinery
First experiences with the use of impactors in	emissions 25 p0018 A80-11992
large power plants 25 p0074 A80-18859	AIR TRAFFIC CONTROL
Experiences with the practical use of an Andersen	Preliminary test results of a flight management
cascade impactor in the exhaust gas of various	algorithm for fuel conservative descents in a
industrial sites	time based metered traffic environment flight tests of an algorithm to minimize fuel
25 p0074 A80-18861 Control technology for coal-fired combustion in	consumption of aircraft based on flight time
Northeastern U.S. A - Overview and sulfur	[NASA-TM-80194] 25 p0150 N80-14114
emissions control. B - Particulates, NCx and	
combined systems 25 p0074 A80-18883	•
23 POO 14 NOO-10003	

SUBJECT INDEX ANTENNA DESIGN

AIR TRANSPORTATION ALTERNATING CURRENT The role of technology as air transportation faces Semiconductor alternating-current motor drives and the fuel situation energy conservation 25 p0037 A80-14700 25 p0034 A80-13861 AIRCRAFT CONFIGURATIONS ALUMINATES Multirole cargo aircraft options and configurations Diffusion of tritium in neutron-irradiated --- economic analysis [NASA-TM-80177] microcrystalline Beta-Li5AlO4 25 p0105 N80-11053 25 p0081 A80-19660 AIRCRAFT ENGINES ALUMINUM Preparing aircraft propulsion for a new era in Neutral electrolyte aluminium-air battery Studies on the Ca-CaCrO4 and Li-Al-PeS2 systems for thermal battery applications
25 p0012 A80-11854 energy and the environment 25 p0053 A80-17737 Thermal barrier coatings for aircraft gas turbines Thermal barrier codings --- [AIAA PAPER 80-0302] 25 p0064 ABU-10303 Aircraft Energy Efficiency (ACEE) status report 25 p0091 N80-10206 Performance studies on uniform illumination type nontracking concentrators AIRCRAPT FUELS 25 p0026 A80-12766 Solar absorption spectra of PbS-Al and PbSe-Al An engine fuel chemistry solution to the problem of jet fuel supplies systems 25 p0001 A80-10199 25 p0027 A80-12781 The role of technology as air transportation faces Cooling aluminum molds using heat ripes
[BDX-613-2039-REV] 25 p0108 M80-11384 the fuel situation Study of corrosion and its control in aluminum solar collectors 25 p0037 A80-14700 Alternative jet aircraft fuels [COO-2934-7] 25 p0129 N80-12609 Development of Li-Al/FeS cells with LiCl-rich 25 p0091 N80-10209 Hydrogen as a fuel. Citations from the international aerospace abstracts data tase electrolyte [CONF-7810135-2] 25 p0094 N80-10397 [NTIS/PS-79/0771/0] 25 p0176 N80-15614 Aircraft fuel. Citations from the International ALUMINUM COATINGS Aerospace Abstracts Data Base Solar concentrators using vacuum-contoured SURFACES FOR TRACKING
[AIAA PAPER 80-0399]
ALUMINUM GALLIUM ARSENIDES 25 p0077 A80-19326 Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region consumption of aircraft based on flight time [NASA-TH-80194] 25 p0150 N80 25 p0044 A80-16626 A theoretical evaluation and optimization of the 25 p0150 N80-14114 ALABAMA radiation resistance of gallium arsenide solar-cell structures [NASA-TM-78226] Development of mining guidance and control systems 25 p0137 N80-13601 25 p0046 A80-16794 AlGaAs tunnel diode Summary of major energy legislation of the 95th 25 p0046 A80-16799 Congress Preparation and properties of
Au-/n/AlxGa1-xAs-/n/GaAs Schottky barrier solar [ DOE/TIC-10118] 25 p0100 N80-10644 ALCOHOLS Status of alcohol fuels utilization technology for 25 p0086 A80-20716 stationary gas turbines [HCP/M2098-03] ATHOREA 25 p0135 N80-13283 An indirect ammonia-air fuel system ALGAE 25 p0013 A80-11868 The turnover times and pool sizes of AMORPHOUS SEMICONDUCTORS Stabilized CVD amorphous silicon for high temperature photothermal solar energy conversion 25 p0087 A80-20722 photosynthetic hydrogen production by green algae 25 p0029 A80-12819 Biological transformation of light energy into methane using an anaerobic filter ANABROBES 25 p0133 N80-13267 Microbial hydrogen production from replemishable ALGORITHMS Preliminary test results of a flight management algorithm for fuel conservative descents in a time based metered traffic environment ---25 p0032 A80-13197 Methane fermentation of aquatic biomass 25 p0043 A80-16148
The microbial production of methane from household flight tests or an anyon the consumption of aircraft based on flight time
cures - TW-R01941 25 p0 150 N80-14114 flight tests of an algorithm to minimize fuel wastes - Fixed-bed anaerobic digestion [NASA-TH-80194] 25 p
Insolation models, data and algorithms
[SERI/TE-36-110] 25 p 25 p0074 A80-18870 Biological transformation of light energy into 25 p0165 N80-14617 methane using an anaerobic filter ALKALINE BATTERIES 25 p0133 N80~13267 Cadmium electrodes with improved surface ANNEALING characteristics for alkaline storage fatteries Annealing and degradation studies of ceramic CdS 25 p0009 A80-11838 solar cells Improvement of the high-rate discharge behaviour 25 p0026 A80-12771 of the nickel electrode ANNUAL VARIATIONS 25 p0010 A80-11841 A seasonally adjusted concentrating collector made of mirror strips High-efficiency alkaline accumulator with cadmium mass treated with oxalic acid 25 p0024 A80-12750 25 p0010 A80-11842 A method of estimating monthly average solar radiation on shaded receivers The conversion of ethylene glycol with air in alkaline fuel cells 25 p0060 A80-18123 25 p0011 A80-11850 Climatic variability, marine resources and ALKYL COMPOUNDS offshore development Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] 25 p0108 M80-25 p0131 N80-12689 ANTENNA DESIGN 25 p0108 N80-11544 Design of antennae for R.F. power coupling to tokamak plasma in the ion cyclotron range of ALLOYS The A-I/1-y/B-I/y/C-IIID-VI/2x/E-VI2/1-x/

frequency

[RM-690]

Minimum cost transmitter-receiver antenna pairs

--- antenna design for the satellite solar power station using optimal control theory

pentenary alloy system and its application to photovoltaic solar energy conversion

25 p0046 A80-16786

25 p0079 A80-19608

25 p0094 N80-10414

AUTIBEPLECTION COATINGS SUBJECT INDEX

ANTIREPLECTION COATINGS	ASHES
Some experimental studies on the technical developments of low cost silicon solar cells	Tetrachlorodibenzo-p-dioxin quantitation in stack-collected coal fly ash
25 p0028 A80-12789 The effect of fluorescent wavelength shifting on	25 p0053 A80-17710 ASTRIONICS
solar cell spectral response	Space applications of superconductivity - High
25 p0086 A80-20715 Spectrally selective surfaces with coatings	field magnets 25 p0084 A80-20128
<pre>comprised of ultrafine metal particles solar collectors</pre>	ATLANTIC OCEAN Geothermal resources of the Atlantic Coastal Plain
[AED-CONF-78-212-004] 25 p0115 N80-11620 Thermal degradation of a black chrome solar	ATMOSPHERIC CIRCULATION 25 p0016 A80-11977
selective absorber coating: Short term	Modified power law equations for vertical wind
[LBL-8857] 25 p0161 N80-14549 APPALACHIAN MOUNTAINS (MORTH AMBRICA)	profiles [NASA-TH-79275] 25 p0138 N80-13623
Devonian paleocurrents of the Applachian basin gas production	ATMOSPHERIC COMPOSITION Tetrachlorodibenzo-p-dioxin quantitation in
[METC/CR-79/22] 25 p0149 N80-13735 APPROPRIATIONS	stack-collected coal fly ash
NASA authorization for fiscal year 1980. Part 4:	25 p0053 A80-17710 Environmental control technology for carbon dioxide
Index [GPO-51-336] 25 p0104 N80-10964	[BNL-24999] 25 p0117 N80-11639 Global ecology and man
APPROXIMATION Truncation of nonimaging cusp concentrators	25 p0131 N80-12668 ATMOSPHERIC DIFFUSION
solar collector geometry	The impact of LNG spills on the environment: A
25 p0029 A80-12824 AQUICULTURE	comparison of dispersion models and experimental data
Methane fermentation of aquatic biomass 25 p0043 A80-16148	[UCRL-81812] 25 p0103 N80-10688 ATHOSPHERIC EMERGY SOURCES
Puels from marine biomass 25 p0045 A80-16656	Electricity generation from jet-stream winds 25 p0007 A80-11644
Chemosynthetic production of biomass - An idea	ATMOSPHERIC: MODELS
from a recent oceanographic discovery 25 p0045 A80-16657	The assessment of actual wind power availability in Ireland
AQUIFERS A solar energy system with annual aquifer storage	25 p0003 A80-10844 Wind resource analysis
[ASME PAPER 79-WA/SOL-30] 25 p0066 A80-18560 Two-dimensional transient dispersion and	[SERI/TR-36-088] 25 p0132 880-12710 ATOM CONCENTRATION
adsorption in porous media	Are large concentration of atomic H storable in
[UCRL-81970] 25 p0108 N80-11386 Design optimization of aquifer reservoir-based	tritium-impregnated solid in H2 below 0.10 K 25 p0072 A80-18728
compressed air storage systems [CONF-781046-5] 25 p0116 N80-11628	ATOMIC COLLISIONS  Kinetics of the processes in a plasma produced by
Geopressure energy resource evaluation Texas	an electron beam in a dense inert gas
and Louisiana [ORNL/PPA-79/2] 25 p0138 N80-13605	ATTENUATION CORFFICIENTS 25 p0007 A80-11612
Large-scale annual-cycle thermal energy storage in aquifers	Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks
[CONF-790515-3] 25 p0145 N80-13686 Proceedings of the Thermal Energy Storage in	25 p0079 A80-19600 ATTITUDE (INCLINATION)
Aquifers Workshop	Lateral and tilt whirl modes of flexibly mounted
[LBL-8431] 25 p0160 N80-14533 Aquifer thermal energy storage	flywheel systems for energy storage [SAND-78-7070] 25 p0115 N80-11622
[LBL-7070] 25 p0176 N80-15618 ARCHITECTURE	AUTOMATIC CONTROL A link between science and applications of
Passive and active residential solar heating: A comparative economic analysis of select designs	automatic control; Proceedings of the Seventh
25 p0021 A80-12435	Triennial World Congress, Helsinki, Finland, June 12-16, 1978. Volumes 1, 2, 3 & 4
Colloquium on the Microclimatic Environm∈nt and Habitat, Reims, France, May 21-23, 1979,	25 p0038 A80-14794 The automated array assembly task of the low-cost
Proceedings 25 p0041 A80-15968	silicon solar array project, phase 2 [NASA-CR-162429] 25 p0109 N80-11562
Architectural concerns in solar system design and	Method for forming a solar array strip
installation [SOLAR/0801-79-01] 25 p0129 N80-12607	[NASA-CASE-NPO-13652-3] 25 p0153 N80-14474 AUTOMATIC PREQUENCY CONTROL
Commercializing solar architecture [SEBI/TF-62-113] 25 p0161 N80-14548	Area load-frequency control software package for electric power system operation
ARGON Optimization of argon admixture in deuterium	AUTOMATIC GAIR CONTROL 25 p0022 A80-12735
fusion with non-stationary action of plane shock waves	Area load-frequency control software package
25 p0007 A80-11546	for electric power system operation 25 p0022 A80-12735
ARIZONA  Energy system in the Far West: Impacts of the	AUTOMOBILE ENGINES  Vehicle emissions control and its effect on engine
National Energy Act of 1978 [UCRL-52754] 25 p0140 N80-13638	development 25 p0037 &80-14708
ARMATURES  Effects of metallurgical microstructure of	Energy storage systems for automobile propulsion,
armatures on compressed magnetic field generators	1978 study. 1: Overview and findings [UCRL-52553-VOL-1] 25 p0105 N80-10970
[SAND-79-0890C] 25 p0137 N80-13375 PULSAR: An inductive pulse power source	Assessment of the state of technology of automotive Stirling engines
[SAND-79-1246C] 25 p0177 N80-15627	[NASA-CR-159631] 25 p0150 N80-13989
Interaction in limited arrays of windmills:	Effects of inspection and maintenance programs on fuel economy
Review of earlier results from a simple model and a presentation of the capabilities of a	[PB-297583/7] 25 p0170 N80-15420 AUTOMOBILE FUBLS
dynamic PBL model [DM-26] 25 p0116 N80-11631	Unleaded gasoline shortages and fuel switching - The potential impact in Southern California 25 p0004 A80-11019
	23 20004 200-11013

Technico economic study of the use of hydrogen and	BEDS (PROCESS ENGINEERING)
methanol for road transport 25 p0042 A80-15993	The challenge of efficiently retorting very nonuniform beds of oil shale rubble
Hydrogen as a fuel. Citations from the	25 p0 085 A80-20453
international aerospace abstracts data base [NTIS/PS-79/0771/0] 25 p0094 N80-10397	Fluid Dynamics of Porous Media in Energy
[NTIS/PS-79/0771/0] 25 p0094 N80-10397 Environmental aspects of alternative fuels	Applications, volume 2 [VKI-LEC-SER-1979-4-VOL-2] 25 p0121 N80-12346
utilization for highway vehicles	[VKI-LEC-SER-1979-4-VOL-2] 25 p0121 N80-12346 Preparation of a coal conversion systems technical
[UCBL-81841] 25 p0120 N80-12201	data book, project 61003
Physical properties of gasoline/alcohol automotive fuels	[FE-2286-32] 25 p0134 N80-13281
[CONF-790520-4] 25 p0134 N80-13273	Coal conversion in flash hydropyrolysis reactors [BNL-26209] 25 p0136 N80-13294
Driving cycle comparisons of energy economies and	Cost analysis of packed beds for thermal energy
emissions from an alcohol and gasoline fueled vehicle	storage [CAES-11] 25 p0.145 NRO-13687
[CONF-790520-7] 25 p0134 N80-13274	[CAES-11] 25 p0145 N80-13687 Development of the steam-iron process for hydrogen
The 50,000 mile methanol/gasoline blend fleet study	production, 9010
fuel efficiency and exhaust emissions [CONF-790520-6] 25 p0134 N80-13275	[FE-2435-32] 25 p0150 N80-14258
[CONF-790520-6] 25 p0134 N80-13275 Research and development of rapid hydrogenation	BENEFICIATION Management of coal preparation fine wastes without
for coal conversion to synthetic motor fuels	disposal ronds
(riser cracking of coal) [FE-2307-46] 25 p0134 N80-13280	[PB-299100/8] 25 p0180 N80-15691
Liquid hydrogen as an automotive fuel	BERYLLIUM  Experimental studies of neutron multiplication
[LA-UR-79-621] 25 p0136 N80-13297	from beryllium /n, 2n/ reaction in CTR blankets
Project planning document: Highway vehicle	25 p0081 A80-19662
Alternative Fuels Utilization Program (AFUP) [DOE/CS-0093] 25 p0168 N80-15279	BIBLIOGRAPHIES Hydrogen as a fuel Citations from the
Ethanol/gasoline blends as automotive fuels	Hydrogen as a fuel. Citations from the international aerospace abstracts data base
[CONF-790520-5] 25 p0168 N80-15280	[NTIS/PS-79/0771/0] 25 p0094 N80-10397
AUTOMOBILES Porecasting automobile fleet fuel efficiency	Hydrogen production. Citations from the
25 p0002 A80-10324	international aerospace abstracts data base [NIIS/PS-79/0773/6] 25 p0094 N80-10401
New technology and vehicle operation on roadways	Hydrogen storage as a hydride. Citations from the
25 p0037 A80-14702 The promise and puzzle of electric vehicles	international aerospace abstracts data base
25 p0 0 39 A 80 - 15 175	[NIIS/PS-79/0772/8] 25 p0094 N80-10402 Waste utilization as an energy source. Citations
Energy conservation - Aerodynamic drag reduction	from the Laternational Aerospace Abstracts Data
of intercity buses 25 p0050 A80-17227	Base
Automobile transportation and the environment	[NTIS/PS-79/0765/2] 25 p0102 N80-10667 Aircraft fuel. Citations from the International
25 p0072 A80-18734	Aerospace Abstracts Data Base
Ranking tires using a transient speed-time cycle [PB-297756/9] 25 p0108 N80-11487	[NTIS/PS-79/0764/5] 25 p0102 N80-10668
Research on the dynamics of band-supported	Microwave heating: Industrial applications.  Citations from the engineering data base
flywheel systems	[NIIS/PS-79/0632/4] 25 p0102 N80-10674
[SAND-78-7074] 25 p0128 N80-12597	Lead batteries, volume 2. Citations from the
Demand for special performance vehicles, 1975 - 2025 [UCRL-13911] 25 p0133 N80-12960	engineering index data base [NIIS/PS-77/0634] 25 p0103 N80-10681
Impact of flywheel-transmissions on automobile	National environmental/energy workforce
performance: A logical basis for evaluation [UCRL-52758] 25 p0137 N80-13480	assessment, phase 3. Air programs bibliography
[UCRL-52758] 25 p0137 N80-13480 Ambient temperature, fuel economy, emissions, and	[PB-298580/2] 25 p0117 N80-11670 Thermal performance of buildings and building
trip length	envelope systems: An annotated bibliography
[PB-298847/5] 25 p0166 N80-14976 AUXILIARY POWER SOURCES	[LBL-8925] 25 p0145 N80-13680
Photovoltaic solar cell array used for	Geothermal energy. Part 1: Exploration, volume 3. Citations from the NTIS data base
supplemental power generation	[NTIS/PS-79/0814/8] 25 p0148 N80-13715
25 p0061 A80-18129	Geothermal energy. Fart 2: Corrosion and
Materials resource requirements and potential	equipment, volume 3. Citations from the HTIS data base
limitations in solar energy products	[NTIS/PS-79/0815/5] 25 p0148 N80-13716
25 p0018 A80-11990	Geothermal energy. Part 3: Technology and
AXIAL FLOW TURBINES Preliminary design of axial flow hydrocarbon	general studies, volume 3. Citations from the NTIS data base
turbine/generator set for geothermal applications	[NTIS/PS-79/0816/3] 25 p0 148 N80-13717
[EPRI-ER-513] 25 p0160 N80-14536	Geothermal energy, volume 3. Citations from the
AXISYMBETBIC FLOW Mach 3 hydrogen external/base burning	Engineering Index data base
[AIAA PAPEE 80-0280] 25 p0077 A80-19311	[NTIS/PS-79/0818/9] 25 p0148 N80-13718 Geothermal energy. Part 3: Technology and
_	general studies, volume 4. Citations from the
В	NIIS data base
BACTERIA	[NTIS/PS-79/0817/1] 25 p0148 N80-13719 Geothermal energy, volume 4. Citations from the
Chemosynthetic production of biomass - An idea	Engineering Index data base
from a recent oceanographic discovery 25 p0045 &80-16657	[NTIS/PS-79/0819/7] 25 p0148 N80-13720 BINARY PLUIDS
BAND STRUCTURE OF SOLIDS	Analysis of binary thermodynamic cycles for a
Analysis and evaluation of isotype heterojunction	moderately low-temperature geothermal rescurce
solar cells 25 p0087 A80-20734	[TREE-1365] 25 p0139 N80-13627
BARRIER LAYERS	BIOCHEMISTRY Pusarium species: Their potential for
Effect of image force on the characteristics of	transforming biomass to ethanol
MOS solar cell 25 p0028 A80-12785	[ANL/EES/TH-38] 25 p0151 N80-14271
BASE PLOW	BIOCLIMATOLOGY Global ecology and man
Mach 3 hydrogen external/base burning	25 p0131 N80-12668

BIODEGRADATION	Pusarium species: Their potential for
Pusarium species: Their potential for transforming biomass to ethanol	transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271
[ANI/RES/TM-38] 25 p0151 N80-14271 BIOLOGICAL EPPECTS	[ANL/RES/TM-38] 25 p0151 m80-14271 Mission analysis for the Federal fuels from biomass program. Volume 3: Feedstock
Combined effects of polycyclic aromatic	availability
hydrocarbons and sunlight on Chinese hamster V79 cells	[SAN-0115-T1] 25 p0168 N80-15276 Production of sugarcane and tropical grasses as a
[CONF-790447-4] 25 p0131 N80-12631	renewable energy source
BIOMASS Biomass-based alcohol fuels: The near-term	[DOE/CS/5912-T1] 25 p0168 H80-15277
potential for use with gasoline [HCP/T4101-03] 25 p0093 N80-10393	Conversion of cellulosic and waste polymer material to gasoline [COO-2982-38] 25 p0169 M80-15291
Energy and economic assessment of anaerobic	Investigation of the viability and cost
digesters and biofuels for rural waste management [PB-296523/4] 25 p0094 N80-10398	effectiveness of solid fuel gasifiers close
Growing energy: Land for biomass farms	coupled to internal combustion engines for 200 kWe power generation
[PB-296650/5] 25 p0094 N80-10400	[DOE/RL-90476-13] 25 p0169 N80-15293
Pilot plant gasification test on biomass fuels [PB-299077/8] 25 p0151 N80-14272	Economic analysis of small scale bioconversion units in New Mexico
Research and evaluation of biomass	[PB-301390/1] 25 p0169 N80-15298
resources/conversion/utilization systems	Research and evaluation of biomass
<pre>(market/experimental analysis for development of a data base for a fuels from biomass model)</pre>	resources/conversion/utilization systems (market/experimental analysis for development of
[COO-5022-5] 25 p0172 N80-15576	a data base for a fuels from biomass model)
BIONASS EMERGY PRODUCTION Pelletized wood /Woodex/ - Applications and	[COO-5022-5] 25 p0172 880-15576 BIOSPHERE
potential from biomass waste products	Global ecology and man
25 p0017 A80-11981	25 p0131 N80-12668
Supply, harvesting and nature of forest biomass as a fuel	BISNUTH COMPOUNDS
25 p0017 A80-11982	Process design of the LASL bismuth sulfate thermochemical hydrogen cycle
Energy plantation for coronandel littoral	[LA-UR-79-1256] 25 p0129 N80-12605
growing plant materials for fuel value in India 25 p0023 A80-12742	BISHUTH OXIDES Lead oxides-lithium cells
Microbial hydrogen production from replenishable	25 p0012 A80-11859
resources 25 m0022 100-12107	BLANKETS (FUSION REACTORS)
25 p0032 A80-13197 Gasohol - Does it or doesn't it produce positive	Boundary layer analysis of cold-blanket systems 25 p0058 A80-17877
net energy	Concept of tokamak-type reactor with
25 p0034 A80-13863 Methane fermentation of aquatic biomass	high-temperature blanket
25 p0043 A80-16148	25 p0059 A80-17885 Neutronics in the toroidal belt-geometry of a
Fuels from marine biomass	screw pinch reactor
25 p0045 A80-16656 Chemosynthetic production of biomass - An idea	25 p0081 A80-19657 Blanket and power conversion system of NUWHAK
from a recent oceanographic discovery	tokamak reactor
25 p0045 A80-16657 Efficiency improvements in bioenergy conversion	25 p0081 A80-19658 Diffusion of tritium in neutron-irradiated
systems	microcrystalline Beta-Li5AlO4
25 p0047 A80-16995 Global options for short-range alternative energy	25 p0081 A80-19660
strategies	Experimental studies of neutron multiplication from beryllium /n, 2n/ reaction in CTR blankets
25 p0048 A80-17129	25 p0081 A80-19662
Global aspects of sunlight as a major energy source 25 p0048 A80-17131	Some implications of a cellular structure in minimum thickness fusion reactor blankets
Ethyl alcohol production and use as a motor fuel	25 p0081 A80-19663
Book 25 p005C A80-17241	Possible improvements to a basic cellular thin
Biological and biochemical hydrogen production	blanket fusion reactor configuration 25 p0081 A80-19664
25 p0053 A80-17581	Two-dimensional heating analysis of fusion
Net energy analysis of alcohol production from sugarcane	blankets for synfuel production 25 p0082 A80-19665
25 p0062 A80-18165	One- and two-dimensional heating analyses of
The microbial production of methane from household wastes - Fixed-bed anaerobic digestion	fusion synfuel blankets
25 p0074 A80-18870	[BNL-NUREG-25635] 25 p0104 N80-10922 LASL thermcchemical hydrogen program status on
Biomass energy enhancement: A report to the	October 31, 1978 fusion-synfuel
President's Council on Environmental Quality solar heat gasification	[LA-UR-78-2895] 25 p0120 N80-12197 BOILERS
[PB-296624/0] 25 p0094 N80-10396	Combustion of anthracite culm in a fluidized bed
Biofuels: A survey [EPRI-EE-746-SR] 25 p0107 N80-11250	bciler
Increased energy from biomass: 1985 possibilities	25 p0014 A80-11959 SRC solids - Boiler fuel and building block
and problem. Working papers for planners	Solvent Refined Coal
[RLO-788-5] 25 p0112 N80-11589 Research overview of biological and chemical	25 p0015 A80-11967 SRC solids - A preferred compliance boiler fuel
conversion methods and identification of key	Solvent Refined Coal
research areas for SERI [SERI/TR-33-067] 25 p0115 N80-11617	25 p0015 A80-11968
Cost analysis of aquatic biomass systems	Calculation of steam generation with parabolic solar collectors
[HCP/ET/4000-78/1] 25 p0120 N80-12202	25 p0039 A80-15328
<pre>Environmental analysis of synthetic liquid fuels shale oil, ccal liquefaction, and biomass</pre>	Superheated steam generation in a Fresnel lens concentrating collector
production of ethanol	[ASME PAPER 79-WA/SOL-21] 25 p0067 A80-18567
[DOE/EV-0044] 25 p0134 N80-13279 Rough cost estimates of solar thermal/coal or	The thermal design and analysis of an integrated
biomass-derived fuels	sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10] 25 p0067 A80-18569
[SERI/TP-35-279] 25 p0151 N80-14269	

SUBJECT INDEX CALCIUM CHLORIDES

Pollution aspects of oilfired and coalfired boilers

Calculations of inertial confinement fusion gains

25 p0074 A80-18849
Control technology for coal-fired combustion in
Northeastern U.S. A - Overview and sulfur
emissions control. B - Particulates, NCx and using a collective model for reheat, bremsstrahlung and fuel depletion for highly combined systems BRINES On-line tests of organic additives for the inhibition of the precipitation of silica from hypersaline geothermal brine. 2: Tests of nitrogen-containing compounds, silanes, and additional ethoxylated compounds

[UCID-18195] 25 polilo 880-11567 25 p0074 A80-18883 MDAC/Bocketdyne solar receiver: Design review [SAND-78-8188] 25 F Solar generation of industrial steam. 25 p0097 N80-10616 Innovative research program subtask [COO-4546-9] 25 p0101 N80-10656 Geothermal energy. Part 2: Corrosion and equipment, volume 3. Citations from the NIIS Technical assessment of thermal DeNox process -for coal fired boilers [PB-297947/4] 25 p0117 N80-11656 data base [NTIS/PS-79/0815/5] 25 p0148 B80-13716 Construction and initial operation of the Miamisburg salt-gradient solar pond Solar-powered steam generator heliostat [BNL-50974] 25 p0129 N80-12610 [BNL-50974] 25 p0129 N80-12
Interim structural design standard for solar
energy applications, phases 1 and 2 --- boiler
and pressure vessel code
[SAND-79-8183] 25 p0146 N80-13
Effects of conditioning agents on emissions from
coal-fired boilers: Test report no. 1
[PB-299191/7] 25 n0165 N80-14 [ MLM-2626-OP] 25 p0161 N80-14541 BROADBAND 25 p0146 N80-13698 Theoretical analysis of multi-cell, high efficiency broad spectral sensitivity solar cells 25 p0138 N80-13617 [PB-299192/5]

25 po165 N80-14590

Effects of conditioning agents on emissions from coal-fired boilers: Test report no. 2

[PB-299192/5]

25 po165 N80-14591 25 p0165 N80-14590 Zinc-bromine battery studies 25 p0010 A80-11845 Recent advances in zinc-bromine batteries 25 p0010 A80-11846
A study of the solar LiBr dual cycle characteristics
[ATIA PAPER 80-0400] 25 m0077 A80 4007 Characterization of operating conditions for gas/water heat recovery steam generators [ORNL/TM-6622] 25 p0176 25 p0176 N80-15620 BORING MACHINES BUILDINGS Borehole geological assessment [NASA-CASE-NPO-14231-1] An evaluation of the NASA Tech House, including 25 p0104 N80-10709 live-in test results, volume 1 [ NASA-TP-1564] BOUNDARY LAYER PLASMAS [NASA-TP-1564] 25 p0109 N80-11559
Thermal performance of buildings and building envelope systems: An annotated bibliography MHD boundary layer of the seeded combustion gas near cold electrodes [LBL-8925] 25 p0047 A80-17004 25 p0145 N80-13680 Boundary layer analysis of cold-blanket systems BURNBRS 25 p0058 A80-17877 Development of combustion data to utilize low Btu Integral modeling of MHD channel boundary layers
[AIAA PAPEE 80-0175] 25 p0064 A80-18353 gases as industrial process fuels. Project 61004 special report no. 4: Convective heat transfer in MHD channels and its High-forward-momentum burner influence on channel performance [AIAA PAPER 80-0178] 25 p0064 A80-18355 [FE-2489-33] 25 p0093 N80-10390 BUTANES BOUNDARY VALUE PROBLEMS Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane Simultaneous investigation of transverse and [ EPRI-ER-1034 ] longitudinal edge effects in the channel of a 25 p0118 N80-11935 plane MHD induction pump Commercialization task force for high Btu qasification Numerical computation of singular control problems with application to optimal heating and cooling [TID-28849] 25 p0135 %80-13286 by solar energy 25 p0051 A80-17307 BRAKES (FOR ARRESTING MOTION) Wind energy conversion system with electromagnetic stabiliser Cadmium electrodes with improved surface characteristics for alkaline storage batteries 25 p0031 A80-13004 25 p0009 A80-11838 BRAYTON CYCLE CADMIUM SULPIDES Performance characteristics of point-focusing Annealing and degradation studies of ceramic CdS distributed-receiver solar Brayton systems
[AIAA PAPER 80-0293] 25 p0063 A80-18298 solar cells 25 p0026 #80-12771 Reliability studies on thin film solar cells for satellite application Conceptual designs for two reject Later a Brayton closed-cycle converter [LA-7821-MS] 25 p0144 M80-13677 Novel ceramic receiver for solar Brayton systems 25 p0146 M80-13694 Conceptual designs for two reject heat systems for 25 p0027 A80-12775 Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution BREEDER REACTORS 25 p0028 A80-12788 Blanket and power conversion system of NUNMAK ---Copper diffusion and photovoltaic mechanisms at tokamak reactor Cu-CdS contact 25 p0081 A80-19658 25 p0033 A80-13204 Experimental studies of neutron multiplication from beryllium /n, 2n/ reaction in CTR blankets
25 p0C81 A80-19662 Measurement of insolation using CdS photoresistor 25 p0047 A80-16998 CADMIUM TELLURIDES Some implications of a cellular structure in minimum thickness fusion reactor blankets
25 p0081 A80-19663 Cadmium telluride solar cells 25 p0026 A80-12765 CALCIUM Possible improvements to a basic cellular thin Studies on the Ca-CaCrO4 and Li-Al-PeS2 systems for thermal battery applications blanket fusion reactor configuration 25 p0081 A80-19664 25 p0C12 A80-11854 Economics of fusion driven symbiotic energy systems (CONP-790602-50) 25 p0128 N80-12602 CALCIUM CHLORIDES An incongruent heat-of-fusion system - CaCl2-6H2O - made congruent through modification of the chemical composition of the system --- during Outlook for nuclear fission energy
[CONF-7811126-1] 25 p0157 N80-14509 RRRMSSTRAHLUNG melting Hard X-ray measurements --- performed on plasma 25 p0029 A80-12823 confinement devices 25 p0045 A80-16722

CALCIUM COMPOUNDS	CARBONACEOUS MATERIALS
Design and development of a 30 watt solid polymer	Environmental protection in the processing of coal
electrolyte fuel cell rower source fueled with calcium hydride	<ul> <li>The utilization or disposal of coal processing residues</li> </ul>
[AD-A071157] 25 p0139 N80-13625	25 p0030 A80-12942
CALIFORNIA	Gasification of residual materials from coal
Energy transition in California [UCRL-15003] 25 p0097 N80-10619	liquefaction. Evaluation of SRC 2 vacuum flash drum bottoms from Fowhatan coal as a feedstock
Residential on site solar heating systems. A	for the Texaco gasification processes
project evaluation using the capital asset	[FE-2247-2] 25 p0119 N80-12191
pricing model [LBL-8298] 25 p0126 N80-12588	CARBOBATES
Analysis of the California solar resource, volume 2	The performance of molten-carbonate fuel cells 25 p0011 A80-11851
[LBL-7860-VOL-2] 25 p0 127 N80-12589	Behaviour of the secondary lithium electrode on
Environmental aspects of alternative energy	alloying substrates in propylene carbonate based
technologies for California [UCRL-15002] 25 p0131 N80-12628	electrolytes
Energy system in the Par West: Impacts of the	25 p0012 A80-11857 Commercial applications of molten carbonate fuel
National Energy Act of 1978	cell systems
[UCRL-52754] 25 p0140 N80-13638	25 p0016 A80-11974
Meteorological effects of oil refinery operations in Los Angeles	A performance and current distribution model for scaled-up molten carbonate fuel cells
[PB-300720/0] 25 p0180 N80-15758	25 p0062 A80-18213
CAMEROON	Influence of electrolyte composition on electrode
Solar energy commercialization for African countries	kinetics in the molten carbonate fuel cell
[HCP/CS-2522] 25 p0127 N80-12591 CANADA	[CCNF-781063-2] 25 p0115 N80-11615 Commercial application of molten carbonate fuel
Calculation of monthly mean solar radiation for	cell system
horizontal and inclined surfaces	[CONF-790213-4] 25 p0123 N80-12557
25 p0028 A80-12817	Prediction of current distribution in a molten
Geology of the Athabasca oil sands 25 p0050 A80-17236	carbonate fuel cell [CONP-781063-1] 25 p0175 %80-15613
CAPACITANCE SWITCHES	CARGO AIRCRAFT
Improving the reliability of capacitance batteries	Multirole cargo aircraft options and configurations
in power grids with higher-harmonic sources	economic analysis
25 p0008 A80-11671 CARBOHYDRATES	[NASA-TM-80177] 25 p0105 N80-11053 CARIBBEAN SEA
Microbial hydrogen production from replenishable	OTIC thermal resource report for Caribbean Sea
resources	Plant Ship 13-15 degrees N 75-80 degrees N
25 p0032 A80-13197	[HCP/T2898] 25 p0113 N80-11599
Current collectors for sodium-sulphur batteries	A 30-ps Josephson current injection logic /CIL/
25 p0013 A80-11867	25 p0030 A80-12853
Hydrogen evolution from water using solid carbon	CARRIER MOBILITY
and light energy 25 p0032 A80-13109	Measurements of minority-carrier diffusion length in heterojunction solar cells
A single coal particle gasification model	25 p0086 A80-20717
25 p0088 A80-20884	CASCADE BANGE (CA-OR-WA)
The photo-electrochemical production of C-C bonds	Geothermal energy development from the Salton
from carbon dioxide	Trough to the High Cascades Cerro Preto, Lower California and Mt. Hood, Oregon
25 p0004 A80-10848	[LBL-8703] 25 p0171 N80-15568
The turnover times and pool sizes of	CATALOGS (PUBLICATIONS)
photosynthetic hydrogen production by green algae 25 p0029 A80-12819	A manual for cataloging and indexing documents geothermal energy data base
Studies on carbon dioxide cycles for power	[LBL-4432-REV-1] 25 p0118 N80-11946
generation. I - Fundamental condensation cycles	CATALYSIS
25 p0083 A80-19716 . Oil recovery by carbon dioxide injection West	Catalysis of hydrogen transfer in a tetralin-coal
Virginia	system 25 p0019 A80-12246
[ORO-5301-34] 25 p0108 N80-11545	Photoelectrochemistry and heterogeneous
Environmental control technology for carbon dioxide	photocatalysis at semiconductors
[BNL-24999] 25 p0117 N80-11639 Naturally occuring carbon dioxide sources in the	25 p0073 A80-18750 Start up system for hydrogen generator used with
United States. A geologic appraisal and	an internal combustion engine
economic sensitivity study of drilling and	[NASA-CASE-NPO-13849-1] 25 p0092 N80-10374
producing carbon dioxide for use in enhanced oil recovery	CATALYSTS
[FE-2025-38] 25 p0130 N80-12624	An update of German non-isothermal coal pyrolysis work
CARBON DIOXIDE LASERS	25 p0019 A80-12245
CO2 electric discharge lasers - Present status and future applications	Water splitting reaction on a polynaphthoguinone
25 p0039 A80-14960	catalyst - A polynaphthoguinone-So2-I2 system for H2O decomposition
Evidence of nonlinear processes from X-ray spectra	25 p0032 A80-13196
of CO2 laser-irradiated targets	Gas generator research and development: BI-GAS
25 p0046 A80-16776 Recent progress in inertial confinement fusion	process [FE-1207-62] 25 p0135 N80-13288
research at the Los Alamos Scientific Laboratory	[FE-1207-62] 25 p0135 N80-13288 Investigation of the effects of the installation
25 p0056 A80-17862	of an oxidation catalyst on a diesel powered
Calculations of inertial confinement fusion gains	vehicle
using a collective model for reheat, bremsstrahlung and fuel depletion for highly	[PE-299928/2] 25 p0180 N80-15699 CATALYTIC ACTIVITY
efficient electrodynamic laser compressions	Activity tests of various catalysts for
25 p0 058 A80-17875	hydrocracking of coal by means of high pressure
A cesium IELEC experiment at Lewis Research Center [NASA-CR-159729] 25 p0151 N80-14386	differential thermal analysis
[ 25 po 15 ii 160-14500	25 p0019 A80-12244 Catalyst development for coal liquefaction
	[EPRI-AF-1084] 25 p0136 N80-13292

SUBJECT INDEX CEROMIUM

ELL CATHODES	CHEMICAL PRACTIONATION
Projected mechanism for thionyl chloride and sulphuryl chloride cathode reactions	Elucidation of coal structural components by short residence-time extractive liquefaction
25 p0012 A80-11856 Utilization of transition metal phosphorus	CHEMICAL PROPERTIES  25 p0119 N80-12188
trisulphides as battery cathodes 25 p0012 A80-11858	An engine fuel chemistry solution to the problem of jet fuel supplies
CELLS (BIOLOGI)	25 p0001 A80-10199
Combined effects of polycyclic aromatic bydrocarbons and sunlight on Chinese bamster V79 cells	The electrochemical characteristics of iron sulphide in immobilized salt electrolytes 25 p0013 A80~11862
[CONF-790447-4] 25 p0131 N80-12631	The physics and chemistry of solar cells
CENTRAL ATLANTIC REGION (US)  Geothermal energy markets on the Atlantic coastal	CHEMICAL REACTIONS 25 p0073 A80-18751
plain 25 p0016 A80-11978	Chemical structures and reactivities of coal as an organic natural product
National Energy Act of 1978: A regional assessment [PB-296479/9] 25 p0130 N80-12615 CERANIC CONTINGS	[CONF-790415-25] 25 p0105 N80-11168 Tertiary oil recovery processes research at the University of Texas
Thermal barrier coatings for aircraft gas turbines [Alaa Paper 80-0302] 25 p0064 A80-18303	[BETC-0001-1] 25 p0108 N80-11544 Experimental verification of the mercury-iodine
CERAMIC NUCLEAR PUELS	thermochemical cycle for the production of
General-purpose heat source development. Phase 1: Design requirements	hydrogen from water, ANL-4 [CONP-780807-11] 25 p0150 N80-14265
[LA-7385-SR] 25 p0114 N80-11608 CERANICS	CHEMICAL REACTORS  Design of a small thermochemical receiver for
Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites	solar thermal rower 25 p0005 180-11338
25 p0012 A80-11861 Novel ceramic receiver for solar Brayton systems	Hydrogen and oxygen from water. II - Some considerations in the reduction of the idea to
[COO-4878-3] 25 p0146 N80-13694	practice 25 p0078 A80-19473
CHANNEL PLOW Simultaneous investigation of transverse and	Laboratory coal gasifier facility
longitudinal edge effects in the channel of a plane MHD induction pump	[UCBL-82602] 25 p0106 N80-11245 HYGAS process update
25 p003C A80-12897 Heat transfer in the channel of a high-power MHD	[CONF-781045-4] 25 p0120 N80-12200 Coal liquefaction short residence time process
generator 25 p0035 A80-14516	research [SAND-79-1400] 25 p0133 N80-13272
High interaction subsonic MHD channel operation [AIAA PAPER 80-0022] 25 p0062 A80-18242	Development of the steam-iron process for hydrogen production, 9010
Integral modeling of MHD channel boundary layers [AIAA PAPER 80-0175] 25 p0064 A80-18353	[FE-2435-32] 25 p0150 N80-14258
Off-design performance analysis of MHD generator channels	Kentucky's coal-based chemical/energy park 25 p0013 A80-11954
[AIAA PAPER 80-0176] 25 p0064 A80-18354 Convective heat transfer in MHD channels and its influence on channel performance	CHLOBINE  Hydrogen-halogen energy storage system  [BNL-50924] 25 p0139 N80-13632
[AIAA PAPER 80-0178] 25 p0064 A80-18355 Heat transfer including radiation and slag	CHLORING COMPOUNDS  Heat generation in Li/SOCl2 cells
particles evolution in MHD channel. I [AIAA PAPER 80-0250] 25 p0076 A80-19304	25 p0012 A80-11855 CHLOROBENZENES
Power take-off analysis for diagonally connected	Tetrachlorodibenzo-p-dioxin quantitation in stack-collected coal fly ash
[AIAA PAPER 80-0253] 25 p0077 A80-19309	25 p0053 A80-17710
CHEMICAL ANALYSIS Proceedings of the 1978 Coal Chemistry Workshop	The water splitting light reaction of chlorophyll
[CONF-780372] 25 p0150 N80-14264 CHEMICAL ATTACK	a dihydrate. Visible light solar energy conversion after the primary reaction in plant
The erosion/corrosion of small superalloy turbine rotors operating in the effluent of a PFB coal	photosynthesis 25 p0133 N80-13188
combustor 25 p0001 A80-10043	CHLOROPLASTS Petroleum plantations and synthetic chloroplasts
CHEMICAL BOWDS  Chemical structures and reactivities of coal as an	25 p0049 A80-1713
organic natural product [CONF-790415-25]	Studies on the Ca-CaCrO4 and Li-Al-FeS2 systems for thermal battery applications
CHEMICAL EMERGY Review of thermal storage materials from the view	25 p0012 A80-11854
point of solar energy application 25 p0025 A80-12756	The scope of effective medium theory for fine metal particle solar absorbers
Study of photochemical processes in the ferrous-thionine system photogalvanic effect	25 p0029 A80-12839 Use of nuclear techniques in the characterization
in dye redox systems for chemical energy conversion	of chrome black solar abscrber surfaces 25 p0084 A80-2014
25 p0027 A80-12783 Conversion of radiant energy into chemical energy	Spectrally selective surfaces with coatings comprised of ultrafine metal particles solar
[UCRL-TRANS-11427] 25 p0114 N80-11609 Research overview of biological and chemical	collectors [AED-COMP-78-212-004] 25 g0115 M80-11620
conversion methods and identification of key research areas for SPRI	Evaluation of high chromium overplays to protect less alloyed substrates from corrosion in a ccal
[SERI/TR-33-067] 25 p0115 N80-11617	gasification atmosphere
CHRMICAL ENGINEERING  Coal as a source of chemical raw materials -	[FE-2621-3] 25 p0119 N80-1216: Thermal aging characteristics of electrodeposited
<pre>prospects for chemical synthesis based on gas from coal</pre>	black chrome solar coatings [SAND-78-2094C] 25 p0159 N80-1452
25 p0031 A80-12944 Thermochemical hydrogen production	Studies of directly absorbing fluids for mid-temperature solar thermal applications
The Labor leaded in the second of the second	5 n0160 N80-1454

25 p0015 A80-11969

Thermal degradation of a black chrome solar	Climatic variability, marine resources and
selective absorber coating: Short term	offshore development
[LBL-8857] 25 p0161 N80-14549 CIRCUITS	25 p0131 B80-12689
Computer analysis of grids currently used for	Solar-climatic statistical study. Summary report, volume 1
CdS/Cu2S solar cells	[HCP/T4016-1] 25 p0132 N80-12707
CTPCURSOTAR PARTAMENT	CLIMATOLOGY
CIRCUMSOLAR BADIATION Circumsolar radiation data for central receiver	Insolation modeling overview
simulation	25 p0020 A80-12428 Climatic impact of alternative energy sources
[LBL-8371] 25 p0131 N80-12647	25 p0050 A80-17140
Measurement of circumsolar radiation: Status report [LBL-8391] 25 p0133 N80-12982	CLOSED CYCLES
[LBL-8391] 25 p0133 B80-12982 CITIES	The physics of closed cycle MHD power generation
Back to the central city - Myths and realities	25 p0043 A80-16264 A small hybrid solar closed-cycle gas turbine
25 p0002 A80-10323	cogeneration plant concept based on today's
Baltimore applications project [NASA-TM-80577] 25 p0133 N80-12957	technology
Barriers to the application of wind energy	[ASME PAPER 79-WA/GT-3] 25 p0071 A80-18637 Electric power generation and LNG evaporation with
conversion systems in urban settings	the aid of gas turbines within a closed-cycle
25 p0155 N80-14494	process
Commercialization strategy report for energy from urban wastes	[AED-CONF-78-155-010] 25 p0121 N80-12291
[TID-28852-DRAFT] 25 p0158 N80-14521	Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572
Overview of the Department of Energy's research,	[SAND-78-2228] 25 p0125 N80-12572 COAL
development and demonstration program for the	Processing of coal, oil sand and heavy oil in situ
recovery of energy and materials from urban waste [CONF-790373-1] 25 p0163 N80-14562	by electric and magnetic fields
CIVIL AVIATION	25 p0019 A80-12310 The distribution of sulfur and organic matter in
The role of technology as air transportation faces	various fractions of peat - Origins of sulfur in
the fuel situation	coal
25 p0037 A80-14700	25 p0074 A80-18833
Rapid devolatilization and partial gasification of	Methane recovery from coalbeds [DOE/MC-08089-T1] 25 p0093 N80-10387
coal in an entrained dust reactor	Computer software to calculate and map geologic
25 p0C02 A80-10226	parameters required in estimating coal
Hydrogen - The fuel of the future Russian book 25 p0002 180-10349	production costs [BPRI-EA-674] 25 p0095 N80-10584
Salinity gradient power - Otilizing vapor pressure	[EPRI-EA-674] 25 p0095 N80-10584 Automated longwall guidance and control systems,
differences	phase 1
25 p0003 A80-10524	[NASA-CR-161329] 25 p0122 N80-12538
Simple procedure for predicting long term average performance of nonconcentrating and of	Automated longwall guidance and control systems,
concentrating solar collectors	phase 2, part 2: Vertical control system (VCS) [NASA-CR-161330] 25 p0122 N80-12539
25 p0005 A80-11340	Automated longwall guidance and control systems,
Pelletized wood /Woodex/ - Applications and potential from biomass waste products	phase 2, part 2: RCS, PAS, and MCS
25 p0017 A80-11981	[NASA-CR-161331] 25 p0122 N80-12540 Methane recovery from coalbeds project. Technology
Materials research - Probable impacts on solar	test projects: Evaluation of candidate projects
energy	[METC-8089-14] 25 p0135 N80-13290
25 p0018 A80-11991 SSPS project - Two solar power plants in Spain	Development of mining guidance and control systems
25 p0 C32 A80-13180	[NASA-TM-78226] 25 p0137 N80-13601 Fossil energy program, 1. Mining research and
Hydrogen fuel applications for urban transit	development: Coal preparation and analysis
25 p0037 A80-14703 Application of solar and fuel cell technology to	[IS-4703] 25 p0147 N80-13702
industrial users	Microbial deterioration of hydrocarbon fuels from oil shale, coal, and petroleum. 1: Exploratory
25 p0C37 A80-14707	experiments
A review of the U.S. wind energy programme	[AD-A073761] 25 p0150 N80-14259
25 p0042 A80-16083 Renewable energy prospects; Proceedings of the	Coal-shale interface detection system
Conference on Non-Possil Fuel and Non-Nuclear	[NASA-CASE-MFS-23720-2] 25 p0152 N80-14423 Energy from the West: Energy resource development
Fuel Energy Strategies, Honolulu, Hawaii,	systems report. Volume 2: Coal
January 9-12, 1979	[PB-299178/4] 25 p0152 N80-14464
25 p0047 A80-17126 Ocean thermal energy conversion /OTEC/ - Social	Environmental assessment of the fluidized-bed
and environmental issues	combustion of coal: Methodology and initial results
25 p0049 A80-17135	[PB-298473/0] 25 p0165 N80-14595
The application potential of hydro power	Coal sulfur measurements
25 p0049 A80-17136 Climatic impact of alternative energy sources	[PB-299575/1] 25 p0169 N80-15294
25 p0050 A80-17140	Three potential longwall mining methods for thick coal seams in the western United States
Dynamic modeling of H2S clean-up processes in	[PB-299568/6] 25 p0170 N80-15544
Coal gasification	Evaluation of the environmental effects of western
25 p0088 A80-20885 Economic impacts of energy conservation and	surface coal mining, volume 1 [FB-300375/3] 25 p0179 N80-15681
renewable energy sources	Pilot scale evaluation of NOx combustion control
[UCBL-15087] 25 p0177 N80-15633	for pulverized coal, phase 2
Calculation of climatic solar heating performance	[FB-299325/1] 25 p0180 N80-15687
25 p0029 A80-12820	Management of coal preparation fine wastes without disposal ronds
Correspondence between solar load ratio method for	[PB-299100/8] 25 p0180 N80-15691
passive water wall systems and f-Chart	COAL GASIFICATION
performance estimates 25 p0029 180-12821	Rapid devolatilization and partial gasification of
Energy and climate: A review with emphasis on	coal in an entrained dust reactor 25 p0002 A80-10226
global interactions	Low/medium BTU coal gasification - Perspective of
25 p0131 N80-12677	the gas industry

COAL LIGURFACTION SUBJECT INDEX

Assessment of long term research needs for

25 p0107 N80-11255

The near term potential for gasification-combined cycle electric power generation 25 p0015 A80-11970 Coal to electricity - Integrated gasification combined cycle 25 p0015 A80-11971 Activity tests of various catalysts for hydrocracking of coal by means of high pressure differential thermal analysis 25 p0019 A80-12244 Coal as a source of chemical raw materials -Prospects for chemical synthesis based on gas from coal 25 p0031 A80-12944 Progress and development trends in coal gasification and liquefaction technologies 25 p0031 A80-12945 Progress and development trends in coal gasification and liquefaction technologies - New gasification methods developed on a laboratory or large scale 25 p0031 A80-12946 Progress and development trends in coal gasification and liquefaction technologies - Recent achievements in conventional coal gasification processes 25 p0031 A80-12947 Progress and development trends in coal gasification and liquefaction technologies -Underground coal gasification 25 p0031 A80-12948 Technical possibilities and economic prospects for coal refining 25 p0043 A80-16175 The present status of coal gasification following the 14th World Gas Congress Toronto 1979 25 p0050 A80-17222 Screening evaluation of electric power cycles integrated with coal gasification plants [ASME PAPEE 79-WA/ENEE-4] 25 p0071 A80-18644 [ASME PAPER 79-WA/FNEE-4] 25 pU/1 Accorded with the controlling production mechanism of methane gas from coalbeds 25 p0085 A80-20499 Computer modeling of coal gasification reactors 25 p0087 A80-20882 Pixed-bed gasifier dynamic model for IGCCP control Integrated Gasification Combined Cycle 25 p0088 A80-20883 A single coal particle gasification model 25 p0088 A80-20884 Dynamic modeling of H2S clean-up processes --- in coal gasification 25 p0088 A80-20885 Mathematical modeling of coal gasification processes 25 p0089 A80-20913 Coal conversion processes and analysis methodologies for synthetic fuels production ---technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322] 25 p0092 Screening evaluation of novel power cycles integrated with gasification plants 25 p0092 N80-10379 [EPRI-AF-1002] 25 p0096 N80-10605 Socioeconomic data requirements for environmental assessment: Coal gasification and liquefaction pro jects [CONF-780843-5] 25 p0103 N80-10693 Wastewater treatment in coal conversion [PB-297587/8] 25 p0104 N80-10700

Health and environmental effects of coal
gasification and liquefaction technologies: A workshop summary and panel reports
[PB-297618/1]
Laboratory coal gasifier facility
[UCRL-82602]
25 25 p0104 N80-10701 25 p0106 N80-11245 [UCHL-02602]

Economics of gasoline production from underground coal gasification via mobil-M process
[CONF-790405-12] 25 p0106 N80-11246

Program to discover materials suitable for service

under hostile conditions obtaining in equipment

for the gasification of coal and other solid fuels [FE-1784-42] 25 p0106 N80-11248

coal-gasification technologies
[PB-297853/4]
25 p010
Two-dimensional transient dispersion and adsorption in porous media [UCBL-81970] 25 p0108 N80-11386 International coal technology summary document 25 p0115 N80-11621 [DOE/PE-0010] Hot gas cleanup [ICTIS/TR-03] 25 p0117 N80-11647 Evaluation of high chromium overplays to protect less alloyed substrates from corrosion in a coal gasification atmosphere [FE-2621-3] 25 p0119 N80-12163 HYGAS process update [CONF-781045-4] 25 p0120 B80-12200 Environmental assessment report: Lurgi coal gasification systems for SNG [PB-298109/0] 25 p0120 M80-12204 Preparation of a coal conversion systems technical data book, project 61003 [FE-2286-32] 25 p0134 N80-13281 Gas generator research and development: BI-GAS process [FE-1207-62] 25 p0135 N80-13288 Underground coal conversion. Program description [DOE/ET-0100] 25 p0136 N80-1. Coal conversion in flash hydropyrolysis reactors 25 p0136 N80-13293 [BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 High-BTU coal gasification processes
[ANL/CES/TE-79-2] 25 p0150 N80-14263
Proceedings of the 1978 Coal Chemistry Workshop Rough cost estimates of solar thermal/coal or biomass-derived fuels [ SERI/TF-35-279] 25 p0151 N80-14269 Sulfur fixation during coal gasification -desulfurizing to reduce air pollution 25 p0169 N80-15296 [PB-301104/6]
COAL LIQUEFACTION Coal liquefaction - An international perspective 25 p0015 A80-11964 Current German developments in coal liquefaction 25 p0015 A80-11965 Recent developments in coal liquefaction in the United States 25 p0015 A80-11966 Activity tests of various catalysts for hydrocracking of coal by means of high pressure differential thermal analysis 25 p0019 A80-12244 Catalysis of hydrogen transfer in a tetralin-coal system 25 p0019 A80-12246 Progress in R and D on coal liquefaction -Progress in research-development on coal liquefaction 25 p0030 A80-12940 Progress and development trends in coal gasification and liquefaction technologies 25 p0031 A80-12945 Progress and development trends in coal gasification and liquefaction technologies - New gasification methods developed on a laboratory or large scale 25 p0031 A80-12946 Progress and development trends in coal gasification and liquefaction technologies - Recent achievements in conventional coal gasification processes 25 p0031 A80-12947 Progress and development trends in coal gasification and liquefaction technologies - Underground coal gasification 25 p0031 A80-12948 Gasoline's alternatives are feasible 25 p0034 A80-13225 Technical possibilities and economic prospects for ccal refining 25 p0043 A80-16175 Socioeconomic data requirements for environmental assessment: Coal gasification and liquefaction projects 25 p0103 N80-10693 [CONP-780843-5]

Chemical structures and reactivities of coal as an organic natural product	SBC solids - Boiler fuel and building block Solvent Refined Coal
[CONF-790415-25] 25 p0105 N80-11168	25 p0015 A80-11967
Research and development of rapid hydrogenation for coal conversion to synthetic motor fuels	SBC solids - A preferred compliance boiler fuel Solvent Refined Coal
(riser cracking of coal) [PE-2307-38] 25 p0106 N80-11249	25 p0015 A80-11968 Survey of MHD plant applications
International coal technology summary document [DOE/PE-0010] 25 p0115 N80-11621	25 p0015 A80-11972
Elucidation of coal structural components by short residence-time extractive liquefaction	Commercial applications of molten carbonate fuel cell systems
25 p0119 N80-12188	25 p0016 A80-11974
Gasification of residual materials from coal	Economics/reliability trade-offs in materials for
liquefaction. Evaluation of SEC 2 vacuum flash	various coal conversion and utilization processes
drum bottoms from Powhatan coal as a feedstock	25 p0016 A80-11975
	An update of German non-isothermal coal pyrolysis
for the Texaco gasification processes	work
[PE-2247-2] 25 p0119 N80-12191	25 p0019 A80-12245
Characterization and combustion of SRC 2 fuel oil	The role of coal gasification and liquefaction in
[EPRI-FP-1028] 25 p0119 N80-12192	improving the efficiency of energy use -
Characterization of coal-derived liquids and other	Comparative end use efficiency of the use of
fossil fuel related materials employing mass	coal: Substitute natural gas and other gases
spectrometry. Mass spectrometry and	versus electric power production
fossil-energy conversion technology: A review	25 p0030 A80-12941
[FE-2537-7] 25 p0120 N80-12198	Environmental protection in the processing of coal
Coal liquefaction short residence time process	- The utilization or disposal of coal processing
research	residues
[SAND-79-1400] 25 p0133 N80-13272	25 p0030 A80-12942
Environmental analysis of synthetic liquid fuels	Environmental protection in the processing of coal
shale oil, coal liquefaction, and biomass	25 m0030 300 4300
production of ethanol	25 p0030 A80-12943 The European economic community's policy
[DOE/EV-0044] 25 p0134 N80-13279	concerning natural gas, coal and new sources of
Preparation of a coal conversion systems technical	energy energy saccial gas, cour and new sources of
data book, project 61003	
[FE-2286-32] 25 p0134 N80-13281	25 p0032 A80-13175 Methanol from coal - An adaption from the past
Commercialization strategy report for coal	25 p0033 180-13224
liquefaction	The role of coal in the world energy picture up to
[TID-28846] 25 p0135 N80-13285	the year 2000 - Reserves, resources, and
Gasification of residual materials from coal	availability from the Western European viewpoint
liquefaction	25 p0040 A80-15625
[FE-2247-22] 25 p0135 N80-13289	Tetrachlorodibenzo-p-dioxin quantitation in
Research and development of an advanced process	stack-collected coal fly ash
for conversion of coal to synthetic gascline and	25 p0053 A80-17710
other distillate motor fuels	Coal-fired open cycle MHD combustion plasmas -
[FE-1800-30] 25 p0135 N80-13291	Chemical equilibrium and transport properties
Catalyst development for coal liquefaction	workshop results
[EPRI-AF-1084] 25 p0 136 N80-13292	[AIAA PAPER 80-0091] 25 p0063 A80-18265
Coal conversion in flash hydropyrolysis reactors	The use of oil shale for SO2 emission control in
[BNL-26209] 25 p0136 N80-13294	atmospheric-pressure fluidized-ted coal combustors
Proceedings of the 1978 Coal Chemistry Workshop	25 p0064 A80-18505
[CONP-780372] 25 p0 150 N80-14264	Pollution aspects of oilfired and coalfired boilers
Low temperature reaction path for coal liquefaction	25 p0074 A80-18849
[SAND-79-0738C] 25 p0169 N80-15288	Control technology for coal-fired combustion in
Environmental assessment report: Solvent Refined	Northeastern U.S. A - Overview and sulfur
Coal (SRC) systems	emissions control. B - Particulates, NOx and
[PB-300383/7] 25 p0179 N80-15676	combined systems
COAL UTILIZATION	25 p0074 A80-18883
The erosion/corrosion of small superalloy turbine	The calculation of carbon load and axial profiles
rotors operating in the effluent of a PFB coal	of oxygen concentration in the bed of a
combustor	fluidized combustor
25 p0001 A80-10043	25 p0077 A80-19421
Lignite fuel and power-plant availability	Continuous coal processing method and means
25 p0004 A80-10944 Coal conversion technologies - Some health and	[NASA-CASE-NPO-13758-2] 25 p0092 N80-10377
environmental effects	Coal conversion processes and analysis
25 -0.006 100 11260	methodologies for synthetic fuels production
25 p0006 A80-11369 Analysis of tarry fractions in emissions resulting	technology assessment and economic analysis of
from low temporature oxidation of bound or i	reactor design for coal gasification
from low temperature oxidation of brown coal	[NASA-CR-161322] 25 p0092 N80-10379
25 p0007 A80-11448 Performance of disk generators for open-cycle MHD	Fluidized-bed combustion of high sulfur coals
power generation	[METC/RI-79/4] 25 p0093 N80-10386
25 p0007 A80-11642	Research guidance studies to assess gasoline from
Kentucky's coal-based chemical/energy park	coal by methanol-to-gasoline and sasol-type
25 p0013 A80-11954	Fischer-Tropsch technologies
Combustion of anthracite culm in a fluidized bed	[FE-2447-13] 25 p0093 N80-10388
boiler	Coal conversion systems: Technical data book
25 p0014 A80-11959	[HCP/T2286-01] 25 p0093 N80-10392
The prospect for anthracite as a national energy	NASA-lewis closed-cycle magnetohydrodynamics plant analysis
resource	
25 p0014 A80-11960	[NASA-TM-79249] 25 p0095 N80-10595 Combustion of low grade coal
Economics of Pullman Kellogg's magnesium promoted	
FGD system Flue Gas Desulfurization	[ICTIS/TR-02] 25 p0106 M80-11179 Trace elements from coal combustion: Atmospheric
25 p0014 A80-11961	emissions
170 MW pressurized fluidized bed combustion	
electric plant	[ICTIS/TR-05] 25 p0106 N80-11180 International coal technology summary document
25 p0014 A80-11962	[DOE/PE-0010] 25 p0115 N80-11621
Development of fluidised bed combustion in the	Technical assessment of thermal DeNox process
United .Kingdom	for coal fired boilers
25 p0015 A80-11963	[PB-297947/4] 25 p0117 N80-11656

SUBJECT INDEX COMMERCIAL EMERGY

Commercial application of molten carbonate fuel	The calculatior of carbon load and axial profiles
cell system	of oxygen concentration in the bed of a
[CONF-790213-4] 25 p0123 N80-12557 Comparison of geothermal energy with coal, oil,	fluidized combustor 25 p0077 A80-19421
and natural gas for selected uses	Fixed-bed gasifier dynamic model for IGCCP control
[DOE/ET-27139-1] 25 p0123 N80-12558	study Integrated Gasification Combined Cycle Plant
Research and development of rapid hydrogenation for coal conversion to synthetic motor fuels	25 p0088 A80-20883
(riser cracking of coal)	COMBUSTION CONTROL
[PE-2307-46] 25 p0134 N80-13280 Research and development of an advanced process	Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures
for conversion of coal to synthetic gasoline and	25 p0008 A80-11816
other distillate motor fuels	Pilot scale evaluation of NOx combustion control
[FE-1800-33] 25 p0135 M80-13287 Status of development, energy and economics	for pulverized coal, phase 2 [PB-299325/1] 25 p0180 N80-15687
aspects of alternative technologies energy	COMBUSTION EFFICIENCY
policy and technology with respect to coal utilization	Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074
[CONF-790371-1] 25 p0145 N80-13689	Near term potential of wood as a fuel
Status of the DOE/NASA critical gas turbine	[HCP/C4101] 25 p0093 N80-10389 Development of gas turbine fuels and combustion;
research and technology project [NASA-TM-79307] 25 p0155 N80-14493	An overview
Environmental options for coal use	[CONF-790337-4] 25 p0093 N80-10391
[LA-UR-79-1393] 25 p0 165 N80-14584 Effects of conditioning agents on emissions from	Results of duct area ratio changes in the NASA Lewis H2-O2 combustion MHD experiment
coal-fired boilers: Test report no. 1	[NASA-TM-79308] 25 p0132 N80-12881
[PB-299191/7] 25 p0165 N80-14590 Effects of conditioning agents on emissions from	COMBUSTION PRYSICS  Mach 3 hydrogen external/base burning
coal-fired boilers: Test report no. 2	[AIAA PAPER 80-0280] 25 p0077 A80-19311
[PB-299192/5] 25 p0165 N80-14591 Conversion of coal-based methanol to ethylene and	A single coal particle gasification model 25 p0088 A80-20884
a gaseous fuel	COMBUSTION PRODUCTS
[PB-301256/4] 25 p0169 N80-15297	Effect of kinetics of thermonuclear reaction
COASTAL PLAIRS Geothermal resources of the Atlantic Coastal Plain	products upon D-T plasma parameters 25 p0007 A80-11544
25 p0016 A80-11977	Performance of disk generators for open-cycle MHD
COASTAL WATER Salt power - Is Neptune's ole salt a tiger in the	power generation 25 p0007 A80-11642
tank fresh/salt water osmotic pressure	Source, supply and nature of municipal and
difference for electrical generation	industrial waste as a fuel
- 25 p0045 A80-16654 COASTS	25 p0017 A80-11983 Pollution aspects of oilfired and coalfired boilers
National energy policy and state coastal programs:	25 p0074 A80-18849
A critique of current efforts to balance environmental protection and energy production	<pre>Effect of off-design operation of MHD generators   on NO/x/ chemical kinetics</pre>
along the coast	[AIAA PAPER 80-0254] 25 p0077 A80-19310
[SAN-0034/263-1] 25 p0141 N80-13643 COATINGS	Fixed-bed gasifier dynamic model for IGCCP control study Integrated Gasification Combined Cycle
Thionine coated electrode for photogalvanic cells	Plant
25 p0051 A80-17343	25 p0088 A80-20883
A simplified technique for comparing the effectiveness of collector absorber coatings	Fluidized-bed combustion of high sulfur coals [METC/RI-79/4] 25 p0093 N80-10386
25 p0061 A80-18133	Trace elements from coal combustion: Atmospheric
CONXIAL CABLES Stability of a system of coaxial superconducting	emissions [1CT1S/TR-05] 25 p0106 N80-11180
shells	Characterization and combustion of SEC 2 fuel oil
25 p0018 A80-12027 COBALT OXIDES	[EPRI-FP-1028] 25 p0119 N80-12192 Regenerative process for desulfurization of high
Cobalt oxide as a spectrally selective material	temperature combustion and fuel gases
for use in solar collectors	[BNL-50944] 25 p0134 N80-13277
COLLISIONLESS PLASMAS 25 p0086 A80-20719	COMMAND AND CONTROL  Color graphic controls for the solar central
The effect of current shear on the tearing	receiver test facility
instability 25 p0C59 A8C-18086	25 p0022 A80-12626
COLORADO	Shale oil: US and world resources and prospects
Deep terrestrial heat flow measurements in New Mexico and neighboring geologic areas	for near-term commercialization in the United States
[PB-299489/5] 25 p0153 N80-14471	[ORAU/IEA-79-8(R)] 25 po 122 N80-12544
COLOBADO BIVER (BORTH AMBRICA)	Commercialization strategy report for energy from
Energy development vs water quality in the upper Colorado and upper Missouri River Basins	urban wastes [TID-28852-DRAFT]
[LA-7497-MS] 25 p0117 N80-11641	Commercialization strategy report for electric and
Solar thermal electric plants in hydroelectric grid Lower Colorado region	hybrid vehicles [TID-28858-DRAFT] 25 p0166 N80-14972
[DOE/SF/10505-1] 25 p0143 N80-13663	Commercialization strategy report for recovery of
COMBUSTIBLE PLOW  Mach 3 hydrogen external/tase burning	natural gas from unconventional sources [TID-28848-DRAFT] 25 p0168 N80-15287
[AIAA PAPER 80-0280] 25 p0077 A80-19311	COMMERCIAL AIRCRAFT
COMBUSTION CHAMBERS 170 MW pressurized fluidized bed combustion	The role of technology as air transportation faces the fuel situation
electric plant	25 p0037 A80-14700
25 p0014 A80-11962	Aircraft Energy Efficiency (ACEE) status report
Combustion and turbulence characteristics of cyclone combustors for burning low calorific	COMMERCIAL ENERGY 25 p0 091 N80-10206
value fuels	Commercial applications of molten carbonate fuel
[AIAA PAPER 80-0075] 25 p0076 A80-19275	cell systems 25 p0016 A80-11974

		•
Commercial building and industrial applicat	tions	User's manual for the magnetohydrodynamic
for solar energy		generator channel code, MHDCHN
25 p001/ Materials research - Probable impacts on so	A80-11985 olar	[SAND-78-1260] 25 p0132 N80-12894 Computer program for assessing the economic
energy		feasibility of solar energy for single family
Small solar thermal electric power plants w	A80-11991 ith	residences and light commercial applications [NASA-TM-78251] 25 p0156 N80-14501
early commercial potential		Fuel utilization in residences
[ASME PAPER 79-WA/SOL-9] 25 p0069 Puel choice and aggregate energy demand in	A80-18586	[FPRI-EA-894] 25 p0175 N80-15604 OMPUTER SYSTEMS DESIGN
commercial sector electricity, natura		Color graphic controls for the solar central
and fuel oil [ORNL/CCN-27] 25 p0126	N80-12580	receiver test facility
Commercialization strategy report for coal	100 12500	25 p0022 A80-12626 An overview of Controlled Thermonuclear Research
liquefaction [TID-28846] 25 p0135	N80-13285	Division control and data acquisition computer
Commercial solar augmented heat pump system	1	usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628
[EPRI-ER-1004] 25 p0160 COMMUNICATION EQUIPMENT	N80-14537	The application of computers to fusion
Autonomous power supplies for telecommunication		experimental facilities 25 p0080 A80-19619
COMMUTATORS 25 p0033	A80-13211 CC	OMPUTER TECHNIQUES
Determination of the geometry of the transi	ition	Interactive analysis methods for resource mapping 25 p0008 A80-11709
region of a series MHD generator	A80-12900	Economic performance - Evaluations for solar energy
COMPOSITE MATERIALS		25 p0014 A80-11956 Heliostat Beam Characterization System
New development and applications in composi Proceedings of the Symposium, St. Louis,		computerized video radiometer technique for
October 16, 17, 1978	no.,	solar collector 25 p0022 A80-12627
25 p0040 Superconducting composites fabrication and	A80-15501 CC	OMPUTERIZED DESIGN
properties		Computers in the design of solar energy systems 25 p0020 A80-12426
25 p0040 Critical speeds and natural frequencies of	A80-15511	The influence of thermophysical properties on the
rim-type composite-material flywheels		design and sizing of geothermal power plant components
[SAND-78-7049] 25 p0176 COMPRESSED AIR	N80-15622	[ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593
Design optimization of aquifer reservoir-ba	ised	Numerical computations in the design of compact ignition experiments of D-T toroidal plasma
compressed air storage systems [CONF-781046-5] 25 p0116	N00-11620	heating
Compressed air energy storage technology pr		OMPUTEBIZED SIMULATION 25 p0078 A80-19589
concept for supplying electric power peak load demands	to meet	Computer modelling of electrically parallel arrays
i	N80-14534	of sodium-sulphur cells 25 p0013 A80-11865
Peasibility of compressed air energy storag	je as a	Validation of computer models for predicting
peak shaving technique in California, Vol [SAN-1331-T1] 25 p0174	N80-15596	radiation levels on tilted surfaces 25 p0020 A80-12429
COMPRESSED GAS		Solar cooling performance predictions via
Optimization of neutron yield in conical sy explosion-induced compression	stem at	stochastic weather algorithms 25 p0020 A80-12430
COMPRESSIVE STRENGTH 25 p0007	A80-11545	Validation methodology for solar heating and
Effects of metallurgical microstructure of		cooling systems 25 p0020 A80-12431
armatures on compressed magnetic field ge [SAND-79-0890C] 25 p0137		Sensitivity of direct gain space heating
COMPUTATIONAL FLUID DYNAMICS	N80-13375	performance to fundamental parameter variations 25 p0060 A80-18128
Computer modeling of coal gasification read		Relating computer simulation studies with
Fixed-bed gasifier dynamic model for IGCCF	A80-20882 control	interface state measurements on MIS solar cells 25 p0062 A80-18231
study Integrated Gasification Combine Plant	ed Cycle	Off-design performance analysis of MHD generator
25 p0088	A80-20883	Channels [AIAA PAPER 80-0176] 25 p0064 A80-18354
COMPUTER COMPONENTS A 30-ps Josephson current injection logic /		Computer simulation results for planar reflectors
25 p0030	A80-12853	and flat plate solar collectors [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559
COMPUTER GRAPHICS Color graphic controls for the solar centra	.1	The simulation of building heat transfer for
receiver test facility	.1	passive solar systems [ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574
COMPUTER PROGRAMS	A80-12626	Evaluation of a solar heating system installed in
Materials resource requirements and potenti	al	the LSU Field House [ASME PAPER 79-WA/SOL-31] 25 p0068 A80-18576
limitations in solar energy products		Preliminary analysis of a total solar heating system
Area load-frequency control software pa	A80-11990 ckage	[ASME PAPER 79-WA/SOL-40] 25 p0069 A80-18583 Comparisons of measured and simulated performance
for electric power system operation	100 10775	for CSU Solar House I
Computer software to calculate and map geol	A80-12735 .ogic	[ASME PAPER 79-WA/SOL-35] 25 p0070 A80-18590 SISYFUS - A simulation model for systematic
parameters required in estimating coal production costs		analyses of fusion power plants
[EPRI-EA-674] 25 p0095	N80-10584	25 p0079 A80-19597 The combined d.c. power supply for JET Joint
MSPC solar heating and cooling high speed performance (Hisper) code validation		European Torus
[NASA-CR-161323] 25 p0096	N80-10604	25 p0080 A80-19621 Modeling and simulation. Volume 10 - Proceedings
SAMICS: Input data preparation Solar A Manufacturing Industry Costing Standards	rray	of the Tenth Annual Pittsburgh Conference,
[NASA-CR-162421] 25 p0110	N80-11570	University of Pittsburgh, Pittsburgh, Pa., April 25-27, 1979. Part 3 - Energy and environment
A survey of electric and hybrid vehicle sim programs	ulation	25 p0087 A80-20881
	N80-11954	Computer modeling of coal gasification reactors 25 p0087 A80-20882

SUBJECT INDEX COMPERENCES

Solar parabolic trough forming process An applications analysis for the solar industrial [ALO-4158-1] 25 p0116 880-11626 Linear concentration solar collector in an air process heat market 25 p0088 A80-20888 supported enclosure. Preliminary design study
[SAND-78-7022] 25 p0141 N80-13644
Novel concentrator photovoltaic converter system Computer analysis of grids currently used for CdS/Cu2S solar cells 25 p0C89 A80-20893 development
[SAND-79-7040] 25 p0143 N80-13661
Experimental and theoretical evaluation of a novel
concentrating solar energy collection system Mathematical modeling of coal gasification processes
25 p0089 A80-20913
A survey of electric and hybrid vehicle simulation programs 25 p0118 N80-11954 [SAND-79-1053C] 25 p0144 N80-13671 [ NASA-CB-162457 ] Photovoltaic concentrator application experiment. Dynamic energy system optimization model -- study of computerized simulation domestic energy models Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid [EPRI-EA-1079] 25 p0 157 N80-14514 District space heating potential of low 25 p0145 N80-13688 [ DOE/CS-34267/1] temperature hydrothermal geothermal resources in the southwestern United States --- using computerized simulation Solar concentrator
[NASA-CASE-MFS-23727-1] 25 p0153 N80-14473 Status of the US Department of Energy photovoltaic 25 p0 172 N80-15582 [NMEI-10-1] concentrator development project [SAND-78-2187C] Wharton annual energy model: Development and 25 p0172 N80-15578 simulation results [EPRI-EA-1115] CONCRETES 25 p0175 N80-15606 Evaluation of feasibility of prestressed concrete for use in wind turbine blades
[NASA-CR-159725] 25 p0170 N80-15:
Analysis of field test results for CONCENTRATION Bell Creek residual oil saturation technology test
[BETC-2180-4] 25 p0108 N80-11546 25 p0170 N80-15553 [BETC-2180-4] 25 p0108 N80-115 CONCENTRATION (COMPOSITION) Remote sensing of LNG spill vapor dispersion using single-axis-tracking solar collector foundations 25 p0173 N80-15586 [SAND-79-7023] Raman LIDAR [UCRL-13984] CONDUCTING FLUIDS
Induced fields in the motion of a conducting 25 p0103 N80-10689 CONCENTRATORS medium in the field of an air-core magnetic system 25 p0061 A80-18138 Conceptual design, realization and experimentation of a concentration photovoltaic generator - SOPHOCLE 1000 prototype --- French thesis 25 p0001 A80-10109 CONDUCTIVE HEAT TRANSFER The effects of axial conduction on collector heat removal factor Using a fin with a parabolic concentrator 25 p0004 A80-11333 25 p0004 A80-10847 Utilization of heavy fill gases in annular solar receiver geometries for heat loss reduction [ASME PAPER 79-WA/SOL-18] 25 p0065 A80-18557 Helium penetration in evacuated solar collectors - Theory and effect on their performance Concentration ratio and efficiency in thermophotovoltaics 25 p0005 A80-11336 Simple procedure for predicting long term average performance of nonconcentrating and of Theory and effect on their performance
[ASME PAPER 79-WA/SOL-17] 25 p0066 A80-18563
Peasible thermophysical conditions for gas
receiver tubes in solar power stations
[ASME PAPER 79-WA/HT-37] 25 p0071 A80-18627 concentrating solar collectors 25 p0005 A80-11340 An investigation of experimental performance of a 25 p0023 A80-12748
Performance of solid compound parabolic
concentrators in series CONFERENCES Power sources 7: Research and development in non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978 A seasonally adjusted concentrating collector made of mirror strips 25 p0024 A80-12750 25 p0009 A80-11837 Energy technology VI: Achievements in perspective; Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979 Performance studies on uniform illumination type nontracking concentrators 25 p0026 A80-12766
Review of the work done at C.E.E.H.I. on the
development of single crystal silicon solar
cells for wear with 25 p0013 A80-11953 Society and Aerospace Technology Workshop, Los Angeles, Calif., November 15, 1979, Proceedings 25 p0037 A80-14701 cells for use with concentrated light
25 p0027 A80-12777
Design and development of a 100 peak watt A link between science and applications of sign and development or a 100 re-photovoltaic concentrator system 25 p0027 A80-12778 automatic control; Proceedings of the Seventh Triennial World Congress, Helsinki, Finland, June 12-16, 1978. Volumes 1, 2, 3 & 4 25 p0038 A80-14794 Solar concentrator with polyester film for reflecting surface and pendulum arrangement for New development and applications in composites; Proceedings of the Symposium, St. Louis, Mo., October 16, 17, 1978 tracking movement 25 p0027 A80-12784 Truncation of nonimaging cusp concentrators --solar collector geometry 25 p0040 A80-15501 Colloquium on the Microclimatic Environment and 25 p0029 A80-12824 Calculation of the optical characteristics of Habitat, Reims, France, May 21-23, 1979, high-power two-mirror solar furnaces Proceedings 25 p0041 A80-15968 25 p0044 A80-16629 Seminar on Hydrogen as an Energy Vector: Its Production, Use and Transportation, 1st, Brussels, Belgium, October 3, 4, 1978, Proceedings 25 p0041 A80-15976 High temperature solar collector with optimal concentration - Non-focusing Fresnel lens with secondary concentrator 25 p006C A80-18127 Z5 p0041 A80Renewable energy prospects; Proceedings of the
Conference on Non-Possil Fuel and Non-Nuclear
Fuel Energy Strategies, Honolulu, Hawaii,
January 9-12, 1979 Heat transfer analysis of receivers for a solar concentrating collector
[ASME PAPER 79-WA/SOL-20] 25 p0065 A80-18558 Comparative study of solar optics for paraboloidal 25 p0047 A80-17126 concentrators Plasma physics and controlled nuclear fusion 25 p0066 A80-18564 [ASME PAPER 79-WA/SOL-8] research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volumes 1, 2 & 3 25 p0053 A80-17751 Determination of the technical and economic feasibility of luminescent solar concentrators Concentrating solar collector test results
Collector Hodule Test Pacility (CHTF)
[SAND-78-0977]

25 politimas 25 politimas

International Conference on the Photochemical Conversion and Storage of Solar Energy, 2nd, Cambridge University, Cambridge, England, August	CONSTRUCTION MATERIALS Hazardous properties and environmental effects of
10-12, 1978, Lectures	materials used in Solar Heating and Cooling (SHAC) technologies: Interim handbook
25 p0072 A80-18746 Workshop on Geothermal Resource Assessment and	[DOE/EV-0028] 25 p0163 N80-14565 International activities: The fiscal year 1978
Reservoir Engineering, Larderello, Italy, September 12-16, 1977, Proceedings	survey of international programs at NEL
25 p0075 A80-19201	[PB-300491/8] 25 p0181 N80-16004 CONSUMERS
Pusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978.	Status of information for consumers of small wind energy systems
Volumes 1 & 2 25 p0078 A80-19581	[SERI/TP-51-158] 25 p0113 N80-11602 Demand management demonstration project. Stage 1:
Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference,	Development of residential load characteristics.
University of Pittsburgh, Pittsburgh, Pa., April	Stage 4: Demonstration of residential incremental cost pricing implemented by
25-27, 1979. Part 2 - Systems and control 25 p0087 A80-20862	time-of-day metering
Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference,	CONTINENTAL SHELVES
University of Pittsburgh, Pittsburgh, Pa., April	Pederal leasing and outer continental shelf energy production goals
25-27, 1979. Part 3 - Energy and environment 25 p0087 A80-20881	[DOE/RA-0037] 25 p0178 N80-15640
Waste Heat Utilization: Proceedings of 1978 Engineering Foundation Conference	Cost-effective control systems for solar heating
[CONF-7808102] 25 p0102 N80-10665	and cooling applications [SAN-1592-1] 25 p0101 M80-10658
Increased energy from biomass: 1985 possibilities and problem. Working papers for planners	CONTROL SIMULATION
[RLC-788-5] 25 p0112 N80-11589	Mathematical modeling of coal gasification processes 25 p0089 A80-20913
Proceedings: Solar Thermal Power User Review Panel Meeting	Dynamics and control: Energy conversion,
[SEBI/TF-69-221] 25 p0113 N80-11598 Southeastern forum on appropriate technology	delivery, and demand analysis
[PB-498/96/4] 25 p0118 N80-11965	[BNL-26045] 25 p0099 N80-10633 CONTROLLED FUSION
Cogeneration opportunities conferences [CONF-7806118] 25 p0145 N80-13681	Effect of kinetics of thermonuclear reaction products upon D-T plasma parameters
Proceedings of the 1978 Coal Chemistry Workshop [CONF-780372] 25 p0150 N80-14264	25 p0007 180-1150p
Proceedings of the Thermal Energy Storage in Aquifers Workshop	Optimization of neutron yield in conical system at explosion-induced compression
[LBL-8431] 25 p0160 N80-14533	25 p0007 A80-11545 Optimization of argon admixture in deuterium
Fifth Ocean Thermal Energy Conversion Conference, volume 2, sections 4-5	rusion with non-stationary action of plane shock
[CONF-780236-P2] 25 p0162 N80-14553 Proceedings of the DOE chemical/hydrogen energy	waves 25 p0007 A80-11546
contractor review systems	Status of inertial confinement fusion 25 p0016 A80-11976
[CONF-771131] 25 p0164 N80-14572 West Coast Forum on Appropriate Technology	A Simple model describing hydrogen re-cycling in
research in energy and environmental areas [PB-298986/1] 25 p0166 N80-14962	fusion experiments and its influence on discharge behaviour
Measurements and standards for recycled oil - 2	25 p0022 A80-12453 Review of tokamak experiments
Conference on performance monitoring techniques	Volt-second consumption during the start-up phase
for evaluation of solar heating and cooling systems	OI PLT
[CONF-780432] 25 p0174 N80-15599 All-union scientific and technical conference on	25 p0040 A80-15532 Selected topics on surface effects in fusion
use of the earth's heat for the production of	devices - Neutral-beam injectors and beam-direct converters
electric power - summary of reports [CONF-751270-SUMM] 25 p0176 N80-15615	25 p0043 A80-16262 Plasma physics and controlled nuclear fusion
COMPIDENCE LIMITS Validation methodology for solar heating and	research 1978: Proceedings of the Seventh
cooling systems	International Conference, Innstruck, Austria, August 23-30, 1978. Volumes 1, 2 & 3
CONGRESSIONAL REPORTS 25 p0020 A80-12431	25 p0053 A80-17751 Results from the Divertor Injection Tokamak
Passive solar energy programs and plans [GPO-36-211] 25 p0095 N80-10599	Experiment /DITE/
NASA authorization for fiscal year 1980. Part 4:	25 p0054 A80-17754 The Elmo Bumpy Torus /EBI/ reactor
[GPO-51-336] 25 p0 104 N80-10964	25 p0058 A80-17883 Tandem mirror reactors for controlled fusion
Solar commercialization [GPO-43-586] 25 p0109 N80-11556	25 p0059 A80-17887 Summary on reactor systems tokamak devices
[GPO-42-797] 25 no.109 NRO-11557	25 m0059 180-1799#
Inventory of advanced energy technologies and energy conservation research and development,	Fusion technology 1978; Froceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978.
1970-1978, VOLUME 1	Volumes 1 & 2 25 p0078 A80-19581
[GPO-41-481] 25 p0122 N80-12550 Report to Congress on the economic impact of	Optimization of stabilized imploding liner fusion reactors
energy actions as required by public law 93-275, section 18-d	25 50079 300-10503
[DOE/PE-0007] 25 p0181 N80-15993 COMSTRAIRTS	sisirus - A simulation model for systematic analyses of fusion power plants
Barriers to the application of wind energy	25 p0079 A80-19597 Doublet III neutral beam injection system overview
conversion systems in urban settings 25 p0155 N80-14494	and status report
	25 p0079 A80-19599 The application of computers to fusion experimental facilities
	experimental facilities 25 p0080 A80-19619

25 p0080 A80-19619

SUBJECT INDEX COST ABALYSIS

Experimental studies of neutron multiplication High COP heat pump system, phase 1, results
[HCP/M5056-01] 25 p0110 M80-11573
Evlaution of performance enhancement of solar from beryllium /n, 2n/ reaction in CTE blankets
25 p0081 A80-19662 A system for the control of tritium losses in powered absorption chiller with an improved control strategy using the BNL-built hardware primary and steam circuits of a fusion power plant 25 p0082 A80-19668 Main power supplies for large toroidal fusion simulator [BNL-26218] 25 p0162 N80-14552 experiments COPPER 25 p0082 A80-19670 Copper diffusion and photovoltaic mechanisms at Status of the JET project --- Joint European Torus
25 p0082 A80-19708 Cu-CdS contact 25 c0033 A80-13204 JT-60 project --- tokamak fusion reactor design COPPER COMPOUNDS analysis A new approach to low cost large area selective surfaces for photothermal conversion 25 p0082 A80-19709 CONTROLLERS 25 p0003 A80-10845 Development and testing of the Junkeeper Control COPPER SULFIDES Corporation integrated programmer controller and hydronics package
25 p0 155 N80-14495 Corporation integrated programmable electronic Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution 25 p0028 A80-12788 Development and testing of the Bho Sigma CORE PLOW Incorporated microprocessor control subsystem Off-design performance analysis of MHD generator [NASA-TM-78246] CONVECTIVE HEAT TRANSFER 25 p0 156 N80-14496 channels [AIAA PAPER 80-0176] 25 p0064 A80-18354 Solar energy flat plate collectors - Optimization CORE SAMPLING of air gap The analysis of sediment samples for hydrocarbons [AD-A073822] 25 p0149 M80-13 25 p0C23 A80-12745 25 p0149 ¥80-13754 Heat transfer in the channel of a high-power MHD COBIOLIS EFFECT The Coriolis program --- electric power from 25 p0035 A80-14516 moored counterrotating turbine arrays in warm Studies in heat transfer: A Festschrift for E. R. water current 25 p0044 A80-16653 CORROSION Influence of the working fluid on heat transfer and layout of solar tower receivers Materials compatibility in liquid sodium [HEDL-SA-1559] 25 p0119 N80-12147 Geothermal energy. Part 2: Corrosion and 25 p0036 480-14671 Convective heat transfer in MHD channels and its equipment, volume 3. Citations from the NTIS influence on channel performance [AIAA PAPER 80-0178] data base [NTIS/PS-79/0815/5]
CORROSION PREVENTION 25 p0064 A80-18355 Talkan PAPER GU-U/78]

25 pUU04 A8U-18355

Willization of heavy fill gases in annular solar receiver geometries for heat loss reduction

[ASME PAPER 79-WA/SOL-18]

25 p0065 A80-18557

Analysis of convective heat loss from the receiver 25 p0148 N80-13716 Evaluation of high chromium overplays to protect dess alloyed substrates from corrosion in a coal gasification atmosphere of solar power plants
[ASME PAPER 79-WA/HI-36]
Eat transfer including radiation and slag
particles evolution in HHD channel. I [FE-2621-3] 25 p0119 N80-12163 Study of corrosion and its centrol in aluminum solar collectors [COO-2934-7] 25 p0129 N80-12609 [AIAA PAPER 80-0250] 25 p0076 A80-19 Visualization of natural convection in flat plate 25 p0076 A80-19304 CORROSION RESISTANCE Program to discover materials suitable for service under hostile conditions obtaining in equipment for the gasification of coal and other solid fuels solar collectors 25 p0153 N80-14476 Development, testing and certification of the sigma research, maxi-therm-S-101 thermosyphon [FE-1784-42] 25 p0106 N80-11248 Corrosion protection of solar-collector heat heat exchanger exchangers with electrochemically deposited films [COO-4297-1] 25 p0 171 N80-15569 [NASA-TM-78245] 25 p0156 N80-14499 CONVERSION CORROSION TESTS Solar energy perspectives for public power [SERI/TP-35-300] 25 p0140 Preliminary materials assessment in solar 25 p0140 N80-13635 demonstration systems COOL ING [ ANL/EES-CP-30] 25 p0115 N80-11619 Utilization of heavy fill gases in annular solar receiver geometries for heat loss reduction [ASME PAPER 79-WA/SOL-18] 25 p0065 A80-18557 CORRUGATED SHELLS An experimental study of corrugated steel sheet solar water heater Cost-effective control systems for solar heating 25 p0029 A80-12822 and cooling applications COSMIC BAYS [SAN-1592-1] 25 p0101 N80-10658 Solar panels exposed to cosmic rays Cooling aluminum molds using heat fipes
[BDX-613-2039-REV] 25 p0108 N80-11384 25 p0008 A80-11825 COST ANALYSIS Heat pipe cooled power magnetics [NASA-CR-159659] Resource recovery systems costs 25 p0136 N80-13362 25 p0001 A80-10029 Solar cooling performance in CSU Solar House 3 [COO-2858-23] 25 p0143 N80-Optimal insulation of solar heating system ripes 25 p0143 N80-13668 and tanks COOLING SYSTEMS 25 p0021 A80-12434
The marginal cost of electricity used as backup
for solar bot water systems - A case study The analysis and simulation of an open cycle absorption refrigeration system 25 p0029 A80-12825 25 p0021 A80-12436 Cooling a radioisotope power source in the Space The uncertain costs of waste disposal and resource Shuttle Orbiter [ASME PAPER 79-ENAS-44] 25 p0C39 A80-15267 25 p0043 A80-16150 land rath /j-rahan-44] 25 put35 A80-1: Design of heat pipe cooled laser mirrors with an inverted meniscus evaporator wick The effects of regional insolation differences upon advanced solar thermal electric power plant 25 p0064 A80-18366 [AIAA PAPEE 80-0148] performance and energy costs
[ASME PAPER 79-WA/SOL-15] 25 p0
Deep space network feasibility study of A home-size solar-powered engine for cooling 25 p0069 A80-18588 systems of generation of electricity
[ASME PAPER 79-WA/SOL-34] 25 p0066 A80-18562
A system for the control of tritium losses in rep space necessia reasonation study of terminating Southern California Edison electrical service to Goldstone --- cost analysis of electric power supplies and waste primary and steam circuits of a fusion power plant 25 p0082 A80-19668 energy utilization Development of a high temperature solar powered water chiller. Volume 3: Phase 1
[SAN-1590-1/3-VOL-3] 25 p0101 N80-Cost analysis of aquatic biomass systems
[ 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 25 p0091 N80-10263 25 p0101 N80-10654

COST REFECTIVENESS SUBJECT INDEX

Cost analysis of packed beds for thermal energy

CRACKING (CHEMICAL ENGINEERING)

storage	kesearch and development of rapid hydrogenation
[CAES-11] 25 p0145 N80-13687	for coal conversion to synthetic motor fuels (riser cracking of coal)
LNG industry: An overview of projects and costs (CONP-7811112-2) 25 p0168 N80-15278	[FE-2307-46] 25 p0134 N80-13280
[CONF-7811112-2] 25 p0168 N80-15278 COST EFFECTIVENESS	Research and development of an advanced process
Heat and electricity from the sun using parabolic	for conversion of coal to synthetic gasoline and
dish collector systems	other distillate motor fuels
25 p0037 A80-14706	[FE-1800-33] 25 p0135 N80-13287
A solar energy system with annual aquifer storage	CREEP ABALYSIS
[ASME PAPER 79-WA/SOL-30] 25 p0066 A80-18560	Materials testing for central receiver
Cost effectiveness requirements for space power	solar-thermal power systems
stations	[DOE/TIC-10103] 25 p0096 N80-10606
25 p0073 A80-18800	CREEP TESTS
Influence of the scaling of plasma confinement on	Materials testing for central receiver
the economy and unit size of ignited toroidal	solar-thermal power systems
reactors	[DOE/TIC-10103] 25 p0096 N80-10606
25 p0079 A80-19594	CRITICAL LOADING
Cost-effective control systems for solar heating	Linear synchronous motor development for urban and
and cooling applications [SAN-1592-1] 25 p0101 N80-10658	rapid transit systems 25 p0062 A80-18167
[SAN-1592-1] 25 p0101 N80-10658 The automated array assembly task of the low-cost	CRITICAL TEMPERATURE
	Preparation of superconducting coil through
silicon solar array project, phase 2 [NASA-CR-162429] 25 p0109 N80-11562	composite
[NASA-CR-162429] 25 p0109 N80-11562 Application analysis of solar total energy systems	25 p0040 A80-15512
to the residential sector. Volume 4: Market	CRITICAL VELOCITY
penetration	Critical speeds and natural frequencies of
[ALC-3787-4] 25 p0174 N80-15597	rim-type composite-material flywheels
COST ESTIMATES The reality of on-site fuel cells	[SAND-78-7049] 25 p0176 N80-15622 CROP GROWTH
25 p0016 A80-11973	
Methanol from coal - An adaption from the past	Energy plantation for coromandel littoral growing plant materials for fuel value in India
25 p0033 A80-13224	25 p0023 A80-12742
Computer software to calculate and map geologic	CRUDE OIL
parameters required in estimating coal	Geology of the Athabasca oil sands
production costs	25 p0050 A80-17236
[EPRI-EA-674] 25 p0C95 N8O-10584	On the substitution of petroleum by other energy
Economics of hydrogen production and liquefaction	sources - Using the energy economics of West
updated to 1980	Germany as an example
[NASA-CR-159163] 25 p0106 N80-11238	25 p0074 A80-19000
Rough cost estimates of solar thermal/ccal or	Alternative jet aircraft fuels
biomass-derived fuels	25 p0091 N80-10209
[SERI/TP-35-279] 25 p0151 N80-14269	Oil recovery by carbon dioxide injection West
COST REDUCTION . 25 point and 14209	Virginia
A new approach to low cost large area selective	[ORO-5301-34] 25 p0108 N80-11545
surfaces for photothermal conversion	Bell Creek residual oil saturation technology test
25 p0003 A80-10845	[BETC-2180-4] 25 p0108 N80-11546
Performance of an inexpensive constant flow solar	Standby conservation plan no. 2: Emergency
collector/storage system in ground	building temperature restrictions. Economic
25 p0003 A80-10846	analysis
Review of the work done at C.E.E.R.I. on the	[DOE/ERA-0047] 25 p0112 N80-11593
development of single crystal silicon solar	Identification of a methodology for projecting
cells for use with concentrated light	short-term crude petroleum production in the
25 p0027 A80-12777	United States
Weight optimization of ultra large space structures	[DOE/EIA-0103/14] 25 p0122 N80-12542
[SAWE PAPER 1301] 25 p0086 A80-20641	Current U. S. petroleum situation and short-term
COSTS	supply/demand outlook
Minimum cost transmitter-receiver antenna pairs	[DOE/EIA-0184/5] 25 p0138 N80-13607
antenna design for the satellite sclar power	The analysis of sediment samples for hydrocarbons
station using optimal control theory	[AD-A073822] 25 p0149 N80-13754
[RM-690] 25 p0094 N80-10414	Microbial deterioration of hydrocarbon fuels from
SAMICS: Input data preparation Solar Array	oil shale, coal, and petroleum. 1: Exploratory
Manufacturing Industry Costing Standards	experiments
[ NASA-CR-162421] 25 p0110 N80-11570	[AD-A073761] 25 p0150 N80-14259
Demand management demonstration project. Stage 1:	Energy from the West: Energy resource development
Development of residential load characteristics.	systems report. Volume 5: Oil and natural gas
Stage 4: Demonstration of residential	[PB-299181/8] 25 p0152 x80-14467
incremental cost pricing implemented by	International energy assessment
time-of-day metering	[DOE/EIA-0184/1] 25 p0174 N80-15594
[HCP/B8072-01] 25 p0118 N80-11941	Meteorological effects of oil refinery operations
COULORB COLLISIONS	in Los Angeles
Coulombic effects in the quenching of photoexcited	[PB-300720/0] 25 p0180 N80-15758
Tris/2,2'-bipyridine/ruthenium/II/ and related	CRYOGENIC EQUIPMENT
complexes by methyl viologen electron	Superconducting composites fabrication and
transfer reactions in solar energy conversion	properties
processes	25 p0040 A80-15511
25 p0040 180-15358	Preparation of superconducting coil through
COUPLED MODES	composite
Effect of finite beta on drift-wave turbulence and	25 p0040 A80-15512
particle confinement of toroidal plasma	CRYOGENIC STORAGE
25 p0084 A80-20158	Hydrogen storage by use of cryoadsorbents in
COUPLINGS	comparison to alternatives
Theory of the direct coupling between D.C. motors	25 p0042 A80-15992
and photovoltaic solar arrays	CRYOGENICS
25 p0005 A80-11334	International activities: The fiscal year 1978
	survey of international programs at NEL
	[PB-300491/8] 25 p0181 N80-16004

SUBJECT INDEX DESIGN ANALYSIS

CRYSTALLOGRAPHY	DATA HANAGEHENT
Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598	Rough cost estimates of solar thermal/coal or
COLTURE TECHNIQUES	biomass-derived fuels [SERI/TP-35-279] 25 p0151 N80-14269
Microbial hydrogen production from replenishable resources	[SERI/TP-35-279] 25 p0151 N80-14269  DATA PROCESSING EQUIPMENT  Report on Finnish technological activities
25 p0032 180-13197	25 p0119 N80-11991
CURRENT CONVERTERS (AC TO DC)  Bi-directional four quadrant (BDQ4) power	DECISION MARING
converter development	Review of scenarios of future U.S. energy use
[NASA-CR-159660] 25 p0154 N80-14480	25 p0009 A80-11832 Satellite Power System (SPS) preliminary societal
CURRENT DENSITY	assessment
Dependence of ideal MHD beta limits on current density and pressure profiles	[HCP/B4024-01/14] 25 p0101 N80-10657
25 p0054 A80-17790	Managerial plan: Executive order 12003 and the National Energy Act
Power take-off analysis for diagonally connected	[DOE/TIC-10067] 25 p0104 N80-10965
MHD channels	Implementing energy conservation strategies in
[AIAA PAPER 80-0253] 25 p0077 A80-19309 CURRENT DISTRIBUTION	energy materials transport: U. S. Department of
Accumulation of impurities and stability behaviour	Energy and other government agency policy-making decisions
in the high-density regime of Pulsator	[ANL/EES-TH-32] 25 p0111 N80-11577
25 p0054 A80-17759	DEEP SPACE BETWORK
Prediction of current distribution in a molten carbonate fuel cell	Deep space network feasibility study of
[CONF-781063-1] . 25 p0175 N80-15613	terminating Southern California Edison electrical service to Goldstone cost
CURRENT SHEETS	analysis of electric power supplies and waste
The effect of current shear on the tearing instability	energy utilization
25 p0C59 A80-18086	DEMAND (ECOBONICS) 25 p0091 N80-10263
Digital computer modeling of steady-state	Prontiers in energy demand modeling
conditions of the magnetoplasmadynamic generator	25 p0009 A80-11830
current layer 25 p0083 A80-20058	Supply and demand in input-output analysis for
CURVE FITTING	energy modeling 25 p0088 A80-20890
X-ray measurement of laser fusion targets using	Economic structure, aggregate production functions
least squares fitting	and the demand for energy as an intermediate
CUSPS (MATHEMATICS) 25 p0060 A80-18110	product: A preliminary analysis [DOE/EIA-0103/8] 25 p0096 N80-10607
Truncation of nonimaging cusp concentrators	[DOE/EIA-0103/8] 25 p0096 N80-10607 Energy supply and demand in the midterm: 1985,
solar collector geometry	1990, and 1995
CYCLES 25 p0029 A80-12824	[DOE/EIA-0102/52] 25 p0097 N80-10620
Alternate cycles applied to ocean thermal energy	Demand management demonstration project. Stage 1: Development of residential load characteristics.
conversion	Stage 4: Demonstration of residential
[SERI/TP-34-180] 25 p0172 N80-15571	incremental cost pricing implemented by
CYCLIC HYDROCARBOBS  Combined effects of polycyclic aromatic	time-of-day metering [HCP/B8072-01] 25 p0118 N80-11941
hydrocarbons and sunlight on Chinese hamster	[HCP/B8072-01] 25 p0118 N80-11941 Current U. S. petroleum situation and short-term
V79 cells	supply/demand outlook
[CONF-790447-4] 25 p0131 N80-12631 CYLINDRICAL SHELLS	[DOE/EIA-0184/5] 25 p0138 N80-13607
Stability of a system of coaxial superconducting	The 1985, 1990 and 1995 midterm energy market model results under three scenarios of Fuel Use
shells	Act regulations
25 p0018 A80-12027	[DOE/EIA-0182/2] 25 p0173 N80-15592
D	Energy supply and demand in the short term: 1979 and 1980
_	[COE/EIA-0184/4] 25 p0174 N80-15593
DAMPING Steady-state currents driven by collisionally	DENSE PLASMAS
damped lower-hybrid waves in plasma	Kinetics of the processes in a plasma produced by an electron beam in a dense inert gas
25 p0 C84 A80-20157	25 p0007 #80-11612
DATA ACQUISITION  Monitoring of the solar-heated modular homes at	Survey of mirror machine reactors
Los Alamos	25 p0046 A80-16752 Accumulation of impurities and stability behaviour
25 p0022 A80-12607	in the high-density regime of Pulsator
An overview of Controlled Thermonuclear Research	25 p0054 A80-17759
Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory	DENSITY HEASUREMENT
25 p0022 A80-12628	Measurements of the density fluctuations using the microwave scattering method for toroidal
The application of computers to fusion	plasmas
experimental facilities 25 p0080 A80-19619	25 p0046 A80-16731
DATA BASES	DESALINIZATION A cheap method of improving the performance of
Energy information data base. Corporate author	roof type solar stills
entries	25 p0006 A80-11343
[DOE/TIC-4585-R1-SUPPL-1] 25 p0097 N80-10617  World Energy Data System (WENDS)	Use of geothermal energy for desalination in New Mexico: A feasibility study
[CONF-790461-2] 25 p0112 N80-11587	[PB-299271/7] 25 p0179 N80-15645
Disaggregating PIBS fuel forecasts, validating	DESIGN ANALYSIS
PIES transportation model data base, and cther technical services	Solar collectors as energy converters
[TID-29000] 25 p0114 N80-11612	25 p0036 M80-14670 Design, evaluation, and testing of a moderately
A manual for cataloging and indexing documents	concentrating, non-tracking solar energy collector
geothermal energy data base	[ASME PAPER 79-WA/SOL-3] 25 p0067 A80-18570
[LBL-4432-REV-1] 25 p0118 N80-11946 Energy information data base. Serial titles,	A design method for optimizing collector systems for small solar center receivers
February 1976 - March 1979	[ASME PAPER 79-Wa/SOL-14] 25 p0068 A80-18580
[DOE/TIC-4579-B10-SUPPL-4] 25 p0128 N80-12601	

DESULFURIZING SUBJECT INDEX

DIAMAGNETISM

Design of the International Energy Agency 500 kWe distributed-collector solar thermal-electric

distributed-collector solar thermal-electric	What is the mechanism responsible for the
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592	precursors of internal disruptions as observed in Tokamak plasma
MDAC/Rocketdyne solar receiver: Design review	25 p0054 A80-17807
[SAND-78-8188] 25 p0C97 N80-10616	DIELECTRICS
Battery Energy Storage Test (BEST) facility	Partial discharge performance of lapped plastic
[EPRI-EM-1005] 25 p0098 N80-10628  Heat loss reduction techniques for annular solar	insulation for superconducting power transmission cables and the dielectric strength
receiver designs	of supercritical helium gas
[SAND-78-1769] 25 p0111 N80-11581	[BNL-24779] 25 p0170 N80-15346
Design optimization of aquifer reservoir-based	DIESEL ENGINES
compressed air storage systems	Investigation of the effects of the installation
[CONF-781046-5] 25 p0116 N80-11628	of an oxidation catalyst on a diesel powered
Satellite Power Systems (SPS) concept definition	Vehicle
study. Volume 4: SPS point design definition [NASA-CR-150683] 25 p0119 N80-12106	[PB-299928/2] 25 p0180 N80-15699 DIESEL FUELS
Weight minimization of sandwich type solar	Dynamics of diesel fuel combustion in turbulent flow
collector panels	25 p0091 N80-10074
[SANL-78-2305C] 25 p0147 N80-13710	DIPPERENTIAL THERMAL ANALYSIS
A conceptual design study on the application of	Activity tests of various catalysts for
liquid metal heat transfer technology to the	hydrocracking of coal by means of high pressure
solar thermal power plant	differential thermal analysis
[NASA-CB-162544] 25 p0 154 N80-14484 Design and performance of silicon solar cells	25 p0019 A80-12244 An update of German non-isothermal coal pyrolysis
under concentrated sunlight	work
[SAND-79-1165C] 25 p0172 N80-15577	25 p0019 A80-12245
Evaluation of the evacuated solar annular	DIPPUSERS
receivers used at the Midtemperature Sclar	Experimental demonstration of the
Systems Test Facility (MSSTF)	diffuser-augmented wind turbine concept
[SAND-78-0983] 25 p0173 N80-15585	25 p0007 A80-11643
Sandia composite-rim flywheel development [SAND-78-1865C] 25 p0177 N80-15624	DIGITAL SIMULATION  Computers in the design of solar energy systems
DESULPURIZING 25 po 177 Nov-15024	25 p0020 A80-12426
Rapid devolatilization and partial gasification of	The effect of current shear on the tearing
coal in an entrained dust reactor	instability
25 p0002 A80-10226	25 p0059 A80-18086
Economics of Pullman Kellogg's magnesium promoted	Digital computer modeling of steady-state
PGD system Flue Gas Desulfurization 25 p0C14 A80-11961	conditions of the magnetoplasmadynamic generator current layer
Piscal year 1978 experiences at TVA's Widows Creek	25 p0083 A80-20058
unit 8 limestone scrubber	MEDRE 2: A model for long term energy demand
[ASME PAPER 79-WA/APC-10] 25 p0071 A80-18623	evaluation
Continuous coal processing method and means	[IIASA-RR-78-17] 25 p0109 N80-11554
[NASA-CASE-NPO-13758-2] 25 p0092 N80-10377	The 10 MW solar thermal pilot plant dynamic
Regenerative process for desulfurization of high	simulation. Volume 1: Computer program
temperature combustion and fuel gases [BNL-50944] 25 p0134 N80-13277	description [ATR-78(7747)-1-VOL-1] 25 p0162 N80-14550
Sulfur fixation during coal gasification	The 10 MW solar thermal pilot plant dynamic
desulfurizing to reduce air pollution	simulation. Volume 2: Computer program source
[PB-301104/6] 25 p0169 N80-15296	listing
EPA utility FGD (Flue Gas Desulfurization) survey:	[ATR-78(7747)-2-VOL-2] 25 p0162 N80-14551
December 1978 - January 1979 electric power	DIRECT CORREST
plants [PB-299399/6] 25 p0179 N80-15682	Controllable d.c. power supply from wind-driven self-excited induction machines
[PB-299399/6] 25 p0179 N80-15682 DETERIORATION	25 p0075 A80-19031
Microbial deterioration of hydrocarbon fuels from	The combined d.c. power supply for JET Joint
oil shale, coal, and petroleum. 1: Exploratory	European Torus
experiments	25 p0080 A80-19621
[AD-A073761] 25 p0150 N80-14259	Some dc superconducting cables for underground
DEUTERIUM Spatial and depth distribution of deuterium,	power transmission [LA-UR-79-1057] 25 p0107 N80-11348
oxygen, and limiter materials on the liner of	[LA-UR-79-1057] 25 p0107 N80-11348 Wave propagation in a dc superconducting cable.
TFR 400	Fart 1: Analysis
25 p0082 A80-19682	[LA-UR-79-226] 25 p0151 N80-14346
DEUTERIUM PLASMA	DIBECT POWER GENERATORS
Effect of kinetics of thermonuclear reaction	Modeling and experimental analysis of a fluidic
products upon D-T plasma parameters	generator
25 p0C07 A80-11544 Optimization of argon admixture in deuterium	[ASME PAPER 79-DET-9] 25 p0041 A80-15705 DIRECTIONAL SOLIDIFICATION (CRYSTALS)
fusion with non-stationary action of plane shock	A review of in situ composites for nonstructural
waves	applications
25 p0007 A80-11546	25 p0002 A80-10285
Tandem mirror reactors for controlled fusion	DISPLAY DEVICES
25 p0059 A80-17887	Color graphic controls for the solar central
Numerical computations in the design of compact	receiver test facility
ignition experiments of D-T toroidal plasma heating	DISSOCIATION 25 p0022 A80-12626
25 p0078 A80-19589	Dissociation pressure measurements on salts
SISYPUS - A simulation model for systematic	proposed for thermochemical energy storage
analyses of fusion power plants	[SAND-79-8033] 25 p0160 N80-14532
25 p0079 A80-19597	DISTILLATION
DEVELOPING NATIONS	Physical properties of gasoline/alcohol automotive
Global options for short-range alternative energy	fuels   100 NR-790520-41   25 D0124 N00-1222
strategies 25 p0048 <b>A</b> 80- <b>171</b> 29	[CONF-790520-4] 25 p0134 N80-13273 Research and development of an advanced process
A photovoltaic power system in the remote African	for conversion of coal to synthetic gasoline and
village of Tangaye, Upper Volta	other distillate motor fuels
[NASA-TM-79318] 25 p0123 N80-12552	[PE-1800-33] 25 p0135 N80-13287

ECONCHETRICS SUBJECT INDEX

DIS	STILLATION EQUIPMENT A cheap method of improving the per roof type solar stills	rformance of	DRAG REDUCTION  Reduction of aerodynamic drag and for tractor-trailer vehicles	fuel consumption
DIS		25 p0006 A80-11343	Energy conservation - Aerodynamic	25 p0046 A80-16948 drag reduction
	Optimal control of distributed para for solar thermal applications	_	of intercity buses	25 p0050 A80-17227
		25 p0095 N80-10593	DRILLING	courses in the
DOG	CUBBHTS A manual for cataloging and indexing geothermal energy data base [LBL-4432-REV-1]	ng documents 25 p0118 N80-11946	Naturally occuring carbon dioxide United States. A geologic appra economic sensitivity study of di producing carbon dioxide for use	nisal and Cilling and
DOI	MESTIC BHERGY	25 porto 800 11540	recovery	. In change of
	Annual review of energy. Volume 4 -		[FE-2025-38]	25 p0130 N80-12624
	United States energy alternatives t	25 p0008 A80-11826 to 2010 and	An in-situ optical particle sizing	technique
	beyond - The CONAES study	25 p0008 A80-11827	for fuel droplets [AIAA FAPBE 80-0020]	25 p0062 A80-18240
	Assessing energy policy models - Co future directions	urrent state and	DRY HEAT Hot dry rock geothermal energy det	
	Review of scenarios of future U.S.	25 p0009 A80-11831 energy use	[LA-7807-HDR] DRYING APPARATUS	25 p0144 N80-13673
-	Passive and active residential solar comparative economic analysis of		Microwave heating: Industrial app Citations from the engineering of [NIIS/PS-79/0632/4]	
		25 p0021 A80-12435	DUCT GEOMETRY	25 pt.12 200 10011
	Testing of three installed solar do heaters		Experimental demonstration of the diffuser-augmented wind turbine	
	Techno-economic feasibility analys:		DUCTED FLOW	25 p0007 A80-11643
	cells with and without concentrate lighting	tors for rural	Results of duct area ratio changes Lewis B2-02 combustion MHD exper	
	Performance and analysis of a 'ser	25 p0026 A80-12773	[AIAA PAPER 80-0023] Measured and predicted beam attent	25 p0063 A80-18243
	pump-assisted solar heated reside		beam drift ducts for tokamaks	25 p0079 A80-19600
		25 p0061 A80-18132	DYES	
	Experimental results of the solar	25 p0062 A80-18184	A comprehensive model for photovol at metal electrodes in contact u fluorescent dyes	
	on the LSU field house	25 p0063 A80-18301	_	25 p0004 A80-10879
	[AIAA PAPER 80-0297] A simplified procedure for performance systems with heat pumps		Study of photochemical processes in ferrous-thionine system photoin dye redox systems for chemical	ogalvanic effect
	[ASME PAPER 79-WA/SOL-23] A home-size solar-powered engine for	25 p0065 A80-18555 or cooling	conversion	25 p0027 A80-12783
		25 p0066 A80-18562	DYNAMIC MODELS  Dynamic modeling of H2S clean-up	processes in
	Comparisons of measured and simulator CSU Solar House I	ted performance	coal gasification	25 p0088 A80-20885
	[ASME PAPER 79-WA/SOL-35] Residential solar heat pump system:	25 p0070 A80-18590 s - Thermal and	DYNAMIC STRUCTURAL ANALYSIS  Executive summary: Mod-1 wind tu	tine generator
	economic performance	25 p007C A80-18591	analysis and design report [NASA-CB-159497]	25 p0109 N80-11558
•	A solar assisted and wind powered by residential dwellings		E	•
	[ASME PAPER 79-WA/HT-33]	25 p0070 A80-18595		
	On the substitution of petroleum by sources - Using the energy econo- Germany as an example		Analysis of GaAs and Si solar cell earth orbital and orbit transfer	
		25 p0074 A80-19000 cialization of	[NASA-TM-81383] EARTH RESOURCES	25 p0167 N80-15204
	shale oil in the United States	25 p0078 A80-19474	Interactive analysis methods for n	esource mapping 25 p0008 A80-11709
	Residential heat loss mapping of Po Mexico using airborne thermal sc	armington, New	OTEC thermal resource report for ( Plant Ship 13-15 degrees N 75-8)	Caribbean Sea ) degrees N
		25 p0084 A80-20242	[ECP/T2898] EARTHQUARES	25 p0113 N80-11599
		25 p0109 N80-11557	Development of in situ marine seis qeotechnical instrumentation sys	
	level for 1978-electricity, naturation fuel oil and propane		[SAND-79-0868C] ECOLOGY	25 p0137 880-13431
		25 p0113 N80-11601	Prospects - A social context for a global energy resource reviews	
	public hearings on solar energy policy review		BCONOMETRICS .	25 p0044 A80-16651
	[HCP/U6354-01]	25 p0124 N80-12567	Prontiers in energy demand modeling	
	Dynamic energy system optimization of computerized simulation domes [EPRI-EA-1079]		Assessing energy policy models - ( future directions	25 p0009 A80-11830 Current state and
	New hybrid 1971 energy intensities computation of domestic energy computation	, part 1	Supply and demand in input-output	25 p0009 A80-11831 analysis for
	versus economic factors		energy modeling	
	Commercialization strategy report		The jet membrane process for uran	25 p0088 A80-20890 ium separation
	natural gas from unconventional		and enrichment [RE-586]	25 p0091 N80-10329
	Measurement of energy to heat house		[ 22 300 ]	poosi mov-10329
	[PB-299448/2]	**		

Computer software to calculate and	
parameters required in estimatin	ng ccal
production costs [EPRI-EA-674]	25 p0095 N80-10584
Survey of the research into energy	
interactions. Volume 1: Survey	
[HCP/I6346-01/1-VOL-1] Energy demand in the developing co	25 p0139 N80-13633
[DOE/EIA-0183/10]	25 p0 177 N80-15631
ECONONIC ANALYSIS	
Assessing energy policy models - ( future directions	Current state and
incure directions	25 p0009 A80-11831
Economic performance - Evaluations	s for solar energy
Min non town potential for socie	25 p0014 A80-11956
The near term potential for gasif: cycle electric power generation	ication-combined
-1	25 p0015 A80-11970
Economics/reliability trade-offs	
various coal conversion and util	25 p0016 A80-11975
A microeconomic approach to passi	
Performance, cost, optimal sizi	ng and comfort
analysis	25 p0021 A80-12433
Passive and active residential so	
comparative economic analysis of	f select designs
Proposing of amall color never plan	25 p0021 A80-12435
Economics of small solar power pla areas	ants in rural
	25 p0024 A80-12754
Techno-economic feasibility analys	sis of solar
cells with and without concentrations and selections are selected as the concentration of the	ators for rural
119111119	25 p0026 A80-12773
Application of solar and fuel cel	
industrial users	25 50022 880-18707
Earth benefits of solar power sate	25 p0037 A80-14707 ellites
	25 p0038 A80-14791
Technico economic study of the use	e of hydrogen and
methanol for road transport	25 p0042 A80-15993
Technical possibilities and econo-	
coal refining	05 0042 100 46475
Net energy analysis of alcohol pro	25 p0043 A80-16175
sugarcane	04401202 1102
71 - 4 - 4 - 1 - 4 - 71 - 71 - 72 - 1 - 72 - 72 - 72 - 72	25 p0062 A80-18165
Electric heat - The right price a	t the right time 25 p0062 A80-18184
Economic comparisons of solar and	fossil total
energy systems for industrial a	pplications
[ASME PAPER 79-WA/TS-6] Optimization and comparison strate	25 p0065 A80-18552
energy systems	egies for solar
[ASME PAPER 79-WA/SOL-26]	25 p0067 A80-18573
SOLSTEP - A computer model for pro-	
thermodynamic and economic perfe thermal power plants	ormance or Soldt
[ASME PAPER 79-WA/SOL-12]	25 p0068 A80-18579
Residential solar heat pump syste	ms - Thermal and
economic performance [ASME PAPER 79-WA/SOL-25]	25 p007C A80-18591
Screening evaluation of electric	power cycles
integrated with coal gasification	on plants
[ASME PAPER 79-WA/ENER-4] OTEC - A comprehensive energy ana	25 p0071 A80-18644 lvsis
	25 p0085 A80-20456
An applications analysis for the	solar industrial
process heat market	25 p0088 #80-20888
Analysis of resource pricing for	
electric power production	
Supply and demand in input-output	25 p0088 A80-20889
energy modeling	_
	25 p0088 A80-20890
Coal conversion processes and ana methodologies for synthetic fue	lysis
technology assessment and econo	mic analysis of
reactor design for coal gasific	ation
[NASA-CR-161322] Energy and economic assessment of	25 p0092 N80-10379
digesters and biofuels for rura	l waste management
[PB-296523/4]	25 p0094 N80-10398

```
Economic structure, aggregate production functions
      and the demand for energy as an intermediate product: A preliminary analysis [DOE/EIA-0103/8] 25 p0096 N80-10607
    Economic performance of passive solar heating:
preliminary analysis
[IA-UB-78-2861] 25 p0100 B80-
                                                       25 p0100 B80-10645
    Geothermal resources and technology in the United
       States
      [PE-296623/2]
                                                       25 p0102 N80-10677
    Multirole cargo aircraft options and configurations
       --- economic analysis
    LBBBA-TH-80177] 25 p0105 880-11053
Beconomics of hydrogen production and liquefaction
updated to 1980
       [ NASA-CR-159163]
                                                       25 p0106 N80-11238
    Efforts on the economic analysis of Darrieus
      vertical axis wind turbines [SAND-78-1851C]
    [SAND-78-1851C] 25 p0126 N80-12579
Economics of fusion driven symbiotic energy systems
[CONF-790602-50] 25 p0128 N80-12602
    Technical and economic assessment of solar powered
    water pumping for remote areas
[SAND-79-8187] 25 p0129 N80-126
Multi-year plan for thermal and mechanical energy
                                                       25 p0129 N80-12608
      storage program
[DOE/ET-0109]
   [DOZ/ET-0109] 25 p0142 N80-13658

Computer program for assessing the economic feasibility of solar energy for single family residences and light commercial applications [NSA-TH-78251] 25 p0156 N80-14501

Geothermal energy market study on the Atlantic coastal plain. Economic evaluation model for direct use of moderate temperature, up to 250 P, geothermal resources in the northern Atlantic
       geothermal resources in the northern Atlantic
       coastal plain [PB-298785/7]
                                                       25 p0165 N80-14578
    Economic analysis of small scale bioconversion units in New Mexico
       [PB-301390/1]
                                                       25 p0169 N80-15298
    Solar enhanced oil recovery: An assessment of
      economic feasibility [SAND-79-0787]
                                                       25 p0178 N80-15641
ECONOMIC DEVELOPMENT
    Exploring alternative energy strategies
   25 p0047 A80-17127
Distribution and classification of local socio-economic impacts from energy development [CONF-790481-1] 25 p0166 N80-14954
ECONOBIC PACTORS
    Back to the central city - Myths and realities
                                                      25 p0002 A80-10323
    Soft and hard energy paths - The roads not taken --- political, technical and philosophical aspects of energy problem
                                                       25 p0007 A80-11400
    The compatibility of wind and solar technology
       e compatibility of wind one conventional energy systems
25 p0008 &80-11828
    Economics of Pullman Kellogg's magnesium promoted
       FGD system --- Flue Gas Desulfurization
                                                       25 p0014 A80-11961
  Low/medium BTU coal gasification - Perspective of
       the gas industry
                                                       25 p0015 A80-11969
    The reality of on-site fuel cells
                                                       25 p0016 A80-11973
    Geothermal energy markets on the Atlantic coastal
       plain
                                                       25 p0016 A80-11978
    The financing problems of Europe's gas industry 25 p0032 a80-13174
    Fuel cell sesquicentennial
                                                       25 p0033 A80-13223
    Methanol from coal - An adaption from the past
25 p0033 A80-13224
    Global perspectives and options for long-range
```

energy strategies

economic feasibility

projects [CONF-780843-5]

Impact of technology and maintainability on economic aspects of tokamak power plants 25 p0059 A80-17884 Solar enhanced oil recovery - An assessment of

Socioeconomic data requirements for environmental assessment: Coal gasification and liquefaction

25 p0048 A80-17130

25 p0078 A80-19472

25 p0103 N80-10693

SUBJECT INDEX BLECTRIC FIELDS

Proposing of gogoline and making form and annual	
Economics of gasoline production from underground	BLECTRIC BATTERIES
coal gasification via mobil-M process	Power sources 7: Research and development in
[CONF-790405-12] 25 p0 106 N80-11246 Biofuels: A survey	non-mechanical electrical power sources:
[EPRI-ER-746-SR] 25 p0107 N80-11250	Proceedings of the Pleventh International
Survey of the research into energy-economy	Symposium, Brighton, Sussex, England, September 25-28, 1978
interactions. Volume 1: Survey	25 p0009 A80-11837
[HCP/I6346-01/1-VOL-1] 25 p0139 N80-13633	Optimization of iron-air and nickel oxide-iron
Fundamental economic issues in the development of	traction batteries
small-scale hydro [DOE/RA-23-216.00.0-02] 25 p0143 N80-13667	25 p0011 A80-11847
New hybrid 1971 energy intensities, part 1	Utilization of transition metal phosphorus trisulphides as battery cathodes
computation of domestic energy consumption	25 p0012 A80-11858
versus economic factors	Energy-storage systems pumped-storage
[C00-4628-4-PT-1] 25 p0158 N80-14516	hydroelectric plants, compressed-air
A review of the economics of selected passive and hybrid systems design concepts for solar	energy-storage plants, electric batteries and hot water storage
energy utilization	25 p0034 A80-13513
[SERI/TE-61-144] 25 p0161 N80-14547	Battery Energy Storage Test (BEST) facility
International energy assessment	[EPEI-EM-1005] 25 p0098 N80-10628
[DOE/EIA-0184/1] 25 p0174 N80-15594	Effect of mechanical energy storage systems on the
Nuclear strategy of the Department of Energy [DOE/ER-0025/D] 25 p0175 N80-15605	characteristics of electric vehicles [UCRI-82710] 25 p0102 N80-10664
BCONONIC IMPACT	Lead batteries, volume 2. Citations from the
Regional economic/demographic projections for	engineering index data base
energy policy analysis	[NIIS/PS-77/0634] 25 p0103 N80-10681
[ORNL/TM-6668] 25 p0128 N80-12599 Distribution and classification of local	Regenerative flywheel energy storage system
socio-economic impacts from energy development	[UCRL-13982] 25 r0112 M80-11594 Distribution and movement of electrolyte in fuel
[CONF-790481-1] 25 p0166 N80-14954	cells and batteries
Wharton annual energy model: Development and	25 p0 138 N80-13619
simulation results	BLECTRIC BRIDGES
[EPRI-EA-1115] 25 p0175.N80-15606 Economic impacts of energy conservation and	Effect of microwave radiation on the
renewable energy sources	<pre>voltage-current characteristics of a variable-thickness Josephson microbridge</pre>
[UCRL-15087] 25 p0177 N80-15633	25 p0035 A80-14430
Petrochemicals: Their economic significance in	BLECTRIC CONDUCTORS
the domestic economy	Evaluation of conductor mass and necessary voltage
[PB-299733/6] 25 p0181 N80-15992 Report to Congress on the economic impact of	level for large satellite solar arrays
energy actions as required by public law 93-275,	25 p0036 A80-14595 BLECTRIC CONTACTS
section 18-d	A comprehensive model for photovoltage generation
[DOE/PE-0007] 25 p0181 N80-15993	at metal electrodes in contact with solutions of
ECONOMICS	fluorescent dyes
National energy plan 2 [DOE/TIC-10109] 25 p0097 N80-10618	Determination of the geometry of the transition
Newton's method for generalized equations and the	Determination of the geometry of the transition region of a series MHD generator
PIES energy model	25 p0030 #80-12900
25 p0149 N80-13872	BLECTRIC CONTROL
RCONONY	
	Semiconductor alternating-current motor drives and
Energy conservation and the environment: conflict	energy conservation
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621	energy conservation 25 p0034 A80-13861
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621 ECOSYSTEMS	energy conservation
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621 ECOSYSTEMS Global ecology and man	energy conservation  25 p0034 A80-13861  The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  BCOSYSTEMS Global ecology and man 25 p0131 N80-12668	energy conservation  25 p0034 A80-13861  The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621 ECOSYSTEMS Global ecology and man 25 p0131 N80-12668 EDUCATION	energy conservation  25 p0034 A80-13861  The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA  The KMSF laser fusion programme
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668	energy conservation  25 p0034 A80-13861  The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA
Energy conservation and the environment: conflict or complement  [IBI-7882] 25 p0098 N80-10621  ECOSYSTEMS  Global ecology and man  25 p0131 N80-12668  EDUCATION  National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675 ELECTRIC COROBA The KMSF laser fusion programme  ELECTRIC CURRENT  25 p0056 A80-17860
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA The KMSF laser fusion programme  25 p0056 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur batteries 25 p0013 A80-11867
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634 National environmental/energy workforce	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675 ELECTRIC CORONA The KMSF laser fusion programme  25 p0056 A80-17860 ELECTRIC CURRENT Current collectors for sodium-sulphur batteries 25 p0013 A80-11867 Study of current-driven magnetohydrodynamic
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634 National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675 ELECTRIC CORONA The RMSF laser fusion programme  25 p0056 A80-17860 ELECTRIC CURRENT Current collectors for sodium-sulphur latteries 25 p0013 A80-11867 Study of current-driven magnetohydrodynamic instability in the Heliotron-D device
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634 National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA The RMSF laser fusion programme  25 p0056 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device 25 p0084 A80-20159
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634 National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670 Energy conservation technology education program [HCP/HZ165] 25 p0129 N80-12606	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675 ELECTRIC COROBA The RMSF laser fusion programme  25 p0056 A80-17860 ELECTRIC CURRENT Current collectors for sodium-sulphur hatteries 25 p0013 A80-11867 Study of current-driven magnetohydrodynamic instability in the Heliotron-D device 25 p0084 A80-20159 Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634 National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675 ELECTRIC CORONA The KMSF laser fusion programme  25 p0056 A80-17860 ELECTRIC CURRENT Current collectors for sodium-sulphur batteries 25 p0013 A80-11867 Study of current-driven magnetohydrodynamic instability in the Heliotron-D device 25 p0084 A80-20159 Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634 National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670 Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606 Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA The KMSF laser fusion programme  25 p0056 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device 25 p0084 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723  Bi-directional four quadrant (BDQ4) power
Energy conservation and the environment: conflict or complement [IBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man  25 p0131 N80-12668  EDUCATION  National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [RCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC COROBA The RMSP laser fusion programme  25 p0056 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device 25 p0084 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723  Bi-directional four quadrant (BDC4) power converter development
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634 National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670 Energy conservation technology education program [ECP/N2165] 25 p0129 N80-12606 Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA The KMSF laser fusion programme  25 p0056 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device 25 p0084 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723  Bi-directional four quadrant (BDQ4) power
Energy conservation and the environment: conflict or complement  [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS  Global ecology and man  25 p0131 N80-12668  EDUCATION  National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available  [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography  [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program  [RCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis  [ORAU-158] 25 p0179 N80-15670  ELASTODYNANICS  Whirling response and stability of flexibly	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA The RMSF laser fusion programme  25 p0056 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur latteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device 25 p0084 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723  Bi-directional four quadrant (BDC4) power converter development [NASA-CR-159660]  ELECTRIC DISCHARGES Improvement of the high-rate discharge behaviour
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  ELASTODYNAMICS Whirling response and stability of flexibly mounted, ring-type flywheel systems	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA The RMSF laser fusion programme  25 p0056 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur latteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device 25 p0084 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723  Bi-directional four quadrant (BDC4) power converter development [NASA-CR-159660]  ELECTRIC DISCHARGES Improvement of the high-rate discharge behaviour of the nickel electrode
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION  National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  ELASTODYNAMICS Whirling response and stability of flexibly mounted, ring-type flywheel systems [ASME PAPER 79-DET-71] 25 p0041 A80-15729	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA The RMSF laser fusion programme  25 p0056 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device 25 p0013 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0084 A80-20723  Bi-directional four quadrant (BDC4) power converter development [NASA-CB-159660]  ELECTRIC DISCRARGES Improvement of the high-rate discharge behaviour of the nickel electrode
Energy conservation and the environment: conflict or complement  [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS  Global ecology and man  25 p0131 N80-12668  EDUCATION  National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available  [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography  [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program  [HCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis  [ORAU-158] 25 p0179 N80-15670  ELASTODYNAMICS  Whirling response and stability of flexibly mounted, ring-type flywheel systems  [ASME PAPER 79-DET-71] 25 p0041 A80-15729  ELASTORERS	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC COROBA The RMSF laser fusion programme  25 p0056 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur hatteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Beliotron-D device 25 p0013 A80-11867  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20159  Bi-directional four quadrant (BDC4) power converter development [NASA-CR-159660]  ELECTRIC DISCRABGES Improvement of the high-rate discharge behaviour of the nickel electrode  25 p0010 A80-11841
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION  National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  ELASTODYNAMICS Whirling response and stability of flexibly mounted, ring-type flywheel systems [ASME PAPER 79-DET-71] 25 p0041 A80-15729	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA The KMSF laser fusion programme  25 p0056 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device 25 p0084 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723  Bi-directional four quadrant (BDQ4) power converter development [NASA-CR-159660]  [NASA-CR-159660]  ELECTRIC DISCHARGES Improvement of the high-rate discharge behaviour of the nickel electrode  25 p0010 A80-11841  Lead oxides-lithium cells
Energy conservation and the environment: conflict or complement [IBI-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man  25 p0131 N80-12668  EDUCATION  National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  ELASTODYBANICS Whirling response and stability of flexibly mounted, ring-type flywheel systems [ASME PAPPE 79-DIT-71] 25 p0041 A80-15729  ELASTOMENS Petrochemicals: Their economic significance in the domestic economy [PB-299733/6] 25 p0181 N80-15992	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC COROBA The RMSF laser fusion programme  25 p0056 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur hatteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Beliotron-D device 25 p0013 A80-11867  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723  Bi-directional four quadrant (BDC4) power converter development [NASA-CR-159660]  ELECTRIC DISCRARGES Improvement of the high-rate discharge behaviour of the nickel electrode  Lead oxides-lithium cells  ELECTRIC BMERGY STORAGE Energy-storage systems pumped-storage
Energy conservation and the environment: conflict or complement [IBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [RCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  ELASTODYMAICS Whirling response and stability of flexibly mounted, ring-type flywheel systems [ASME PAPER 79-DIT-71] 25 p0041 A80-15729  ELASTODYMAICS Petrochemicals: Their economic significance in the domestic economy [PB-299733/6] 25 p0181 N80-15992  ELECTRIC AUTOMOBILES	energy conservation  25 p0034 A80-13861 The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA The RMSF laser fusion programme  25 p0056 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur latteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Beliotron-D device 25 p0084 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723  Bi-directional four quadrant (BDC4) power converter development [NASA-CR-159660]  ELECTRIC DISCHARGES Improvement of the high-rate discharge behaviour of the nickel electrode  25 p0010 A80-11841  Lead oxides-lithium cells  ELECTRIC EMERGY STORAGE Energy-storage systems pumped-storage hydroelectric plants, compressed-air
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man  25 p0131 N80-12668  EDUCATION  National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [ECP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  ELASTONYNAMICS Whirling response and stability of flexibly mounted, ring-type flywheel systems [ASHE PAPER 79-DET-71] 25 p0041 A80-15729  ELASTONERS  Petrochemicals: Their economic significance in the domestic economy [PB-299733/6] 25 p0181 N80-15992  BLECTRIC AUTOMOBILES Hydrogen-powered vs. battery-powered automobiles	The thermal triode construction by adding controlling zone to heat pipe  ELECTRIC CORONA The KMSF laser fusion programme  ELECTRIC CURRENT Current collectors for sodium-sulphur batteries  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells  Si-directional four quadrant (BDC4) power converter development [NASA-CE-159660]  ELECTRIC DISCHARGES Improvement of the high-rate discharge behaviour of the nickel electrode  25 p0010 A80-11841  Lead oxides-lithium cells  ELECTRIC EMERGY STORAGE Energy-storage systems pumped-storage hydroelectric plants, compressed-air energy-storage plants, electric batteries and
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man  25 p0131 N80-12668  EDUCATION  National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  ELASTODYNANICS Whirling response and stability of flexibly mounted, ring-type flywheel systems [ASME PAPER 79-DIT-71] 25 p0041 A80-15729  ELASTOMENS Petrochemicals: Their economic significance in the domestic economy [PB-299733/6] 25 p0181 N80-15992  ELECTRIC AUTOMOBILES Hydrogen-powered vs. battery-powered automobiles	The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC CORONA The KMSF laser fusion programme  ELECTRIC CURRENT Current collectors for sodium-sulphur hatteries 25 p0038 A80-17860  ELECTRIC CURRENT Current collectors for sodium-sulphur hatteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Beliotron-D device 25 p0084 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723  Bi-directional four quadrant (BDC4) power converter development [NASA-CR-159660] 25 p00154 N80-14480  ELECTRIC DISCRANGES Improvement of the high-rate discharge behaviour of the nickel electrode  Lead oxides-lithium cells  ELECTRIC BEERGY STORAGE Energy-storage systems pumped-storage hydroelectric plants, compressed-air energy-storage plants, electric batteries and hot water storage
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  BCOSYSTEMS Global ecology and man 25 p0131 N80-12668  BDUCATION 25 p0131 N80-12668  BDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634 National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670 Energy conservation technology education program [HCP/N2165] 25 p0129 N80-12606 Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  BLASTONYNANICS Whirling response and stability of flexibly mounted, ring-type flywheel systems [ASHE PAPER 79-DIT-71] 25 p0041 A80-15729  BLASTONENS Petrochemicals: Their economic significance in the domestic economy [PB-299733/6] 25 p0181 N80-15992  BLECTRIC AUTOMOBILES Hydrogen-powered vs. battery-powered automobiles	The thermal triode construction by adding controlling zone to heat pipe  ELECTRIC CORONA The KMSF laser fusion programme  ELECTRIC CURRENT Current collectors for sodium-sulphur batteries  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells  Si-directional four quadrant (BDC4) power converter development [NASA-CE-159660]  ELECTRIC DISCHARGES Improvement of the high-rate discharge behaviour of the nickel electrode  25 p0010 A80-11841  Lead oxides-lithium cells  ELECTRIC EMERGY STORAGE Energy-storage systems pumped-storage hydroelectric plants, compressed-air energy-storage plants, electric batteries and
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man  25 p0131 N80-12668  EDUCATION  National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  ELASTONYAMICS Whirling response and stability of flexibly mounted, ring-type flywheel systems [ASME PAPER 79-DIT-71] 25 p0041 A80-15729  ELASTONERS  Petrochemicals: Their economic significance in the domestic economy [PB-299733/6] 25 p0181 N80-15992  BLECTRIC AUTOMOBILES  Hydrogen-powered vs. battery-powered automobiles 25 p0033 A80-13199 Electric and hybrid vehicles Book 25 p0041 A80-15658  Mechanical energy storage technology development	The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC COROBA The RMSF laser fusion programme  ELECTRIC CURRENT Current collectors for sodium-sulphur hatteries 25 p0038 A80-17860  Study of current-driven magnetohydrodynamic instability in the Beliotron-D device 25 p0084 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723  Bi-directional four quadrant (BDC4) power converter development [NASA-CR-159660]  ELECTRIC DISCRARGES Improvement of the high-rate discharge behaviour of the nickel electrode  Lead oxides-lithium cells  ELECTRIC BREEGY STORAGE Energy-storage systems pumped-storage hydroelectric plants, compressed-air energy-storage plants, electric hatteries and hot water storage  25 p0034 A80-13513  ELECTRIC FIELDS Processing of coal, oil sand and heavy oil in situ
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [RCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  ELASTODYNAMICS Whirling response and stability of flexibly mounted, ring-type flywheel systems [ASME PAPER 79-DIT-71] 25 p0041 A80-15729  ELASTOMENS Petrochemicals: Their economic significance in the domestic economy [PB-299733/6] 25 p0181 N80-15992  ELASTORE AUTOMOBILES Hydrogen-powered vs. battery-powered automobiles 25 p0033 A80-13199  Electric and hybrid vehicles Book 25 p0041 A80-15658  Mechanical energy storage technology development for electric and hybrid vehicle applications	The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC COROWA The RMSF laser fusion programme  ELECTRIC CURRENT Current collectors for sodium-sulphur latteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device 25 p0084 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723  Bi-directional four quadrant (BDC4) power converter development [NASA-CR-159660]  ELECTRIC DISCHARGES Improvement of the high-rate discharge behaviour of the nickel electrode  Lead oxides-lithium cells  ELECTRIC EMERGY STORAGE Energy-storage systems pumped-storage hydroelectric plants, compressed-air energy-storage plants, electric batteries and hot water storage  ELECTRIC FIELDS Processing of coal, oil sand and heavy oil in situ by electric and magnetic fields
Energy conservation and the environment: conflict or complement [IBI-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man  25 p0131 N80-12668  EDUCATION  National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  ELASTONYAMICS Whirling response and stability of flexibly mounted, ring-type flywheel systems [ASME PAPER 79-DIT-71] 25 p0041 A80-15729  ELASTONERS  Petrochemicals: Their economic significance in the domestic economy [PB-299733/6] 25 p0181 N80-15992  BLECTRIC AUTOMOBILES  Hydrogen-powered vs. battery-powered automobiles 25 p0033 A80-13199 Electric and hybrid vehicles Book 25 p0041 A80-15658  Mechanical energy storage technology development	The thermal triode construction by adding controlling zone to heat pipe  ELECTRIC CORONA The KMSF laser fusion programme  ELECTRIC CURRENT Current collectors for sodium-sulphur batteries  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells  Si-directional four quadrant (BDC4) power converter development [NASA-CE-159660]  ELECTRIC DISCHARGES Improvement of the high-rate discharge behaviour of the nickel electrode  Lead oxides-lithium cells  ELECTRIC BHERGY STORAGE Energy-storage systems pumped-storage hydroelectric plants, compressed-air energy-storage plants, electric batteries and hot water storage  ELECTRIC FIELDS Processing of coal, oil sand and heavy oil in situ by electric and magnetic fields
Energy conservation and the environment: conflict or complement [LBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [RCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  ELASTODYNAMICS Whirling response and stability of flexibly mounted, ring-type flywheel systems [ASME PAPER 79-DIT-71] 25 p0041 A80-15729  ELASTOMENS Petrochemicals: Their economic significance in the domestic economy [PB-299733/6] 25 p0181 N80-15992  ELASTORE AUTOMOBILES Hydrogen-powered vs. battery-powered automobiles 25 p0033 A80-13199  Electric and hybrid vehicles Book 25 p0041 A80-15658  Mechanical energy storage technology development for electric and hybrid vehicle applications	The thermal triode construction by adding controlling zone to heat pipe  25 p0037 A80-14675  ELECTRIC COROWA The KMSF laser fusion programme  ELECTRIC CURRENT Current collectors for sodium-sulphur hatteries 25 p0013 A80-11867  Study of current-driven magnetohydrodynamic instability in the Beliotron-D device 25 p0087 A80-20159  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723  Bi-directional four quadrant (BDC4) power converter development [NASA-CR-159660]  ELECTRIC DISCRARGES Improvement of the high-rate discharge behaviour of the nickel electrode  Lead oxides-lithium cells  ELECTRIC BEERGY STORAGE Energy-storage systems pumped-storage hydroelectric plants, compressed-air energy-storage plants, electric batteries and hot water storage  25 p0019 A80-13513  ELECTRIC PIELDS Processing of coal, oil sand and heavy oil in situ by electric and magnetic fields  25 p0019 A80-12310  Laser fusion implications of resonance absorption
Energy conservation and the environment: conflict or couplement [IBL-7882] 25 p0098 N80-10621  ECOSYSTEMS Global ecology and man 25 p0131 N80-12668  EDUCATION 25 p0131 N80-12668  EDUCATION National environmental/energy workshop assessment, phase 3. Energy programs directory of courses available [PB-298587/7] 25 p0117 N80-11634  National environmental/energy workforce assessment, phase 3. Air programs bibliography [PB-298580/2] 25 p0117 N80-11670  Energy conservation technology education program [RCP/M2165] 25 p0129 N80-12606  Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary analysis [ORAU-158] 25 p0179 N80-15670  ELASTONYWAHICS Whirling response and stability of flexibly mounted, ring-type flywheel systems [ASHE PAPER 79-DIT-71] 25 p0041 A80-15729  ELASTONERS Petrochemicals: Their economic significance in the domestic economy [PB-299733/6] 25 p0181 N80-15992  ELECTRIC AUTOMOBILES Hydrogen-powered vs. battery-powered automobiles 25 p0033 A80-13199  Electric and hybrid vehicles Book 25 p0041 A80-15658  Mechanical energy storage technology development for electric and hybrid vehicle applications	The thermal triode construction by adding controlling zone to heat pipe  ELECTRIC CORONA The KMSF laser fusion programme  ELECTRIC CURRENT Current collectors for sodium-sulphur batteries  Study of current-driven magnetohydrodynamic instability in the Heliotron-D device  Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells  Si-directional four quadrant (BDC4) power converter development [NASA-CE-159660]  ELECTRIC DISCHARGES Improvement of the high-rate discharge behaviour of the nickel electrode  Lead oxides-lithium cells  ELECTRIC BHERGY STORAGE Energy-storage systems pumped-storage hydroelectric plants, compressed-air energy-storage plants, electric batteries and hot water storage  ELECTRIC FIELDS Processing of coal, oil sand and heavy oil in situ by electric and magnetic fields

INDUINIC GINDBRIGHT	5050504 22222
Influence of the loading factor on the performance characteristics of series MHD generators 25 p0061 A80-18137	Assessment of the applicability of mechanical energy storage devices to electric and hybrid vehicles. Volume 1: Executive summary
ELECTRIC GENERATORS  Measurements on a 15 kW wind energy conversion  system	[UCRL-52773-VOL-1] 25 p0166 N80-14973 Lithium/iron sulfide batteries for electric vehicles [CONF-781006-2] 25 p0175 N80-15611
25 p0039 A80-15329 Modeling and experimental analysis of a fluidic generator	Energy storage system for automobile propulsion, 1978 study. 2: Detailed report [UCRL-52553-VOL-2] 25 p0181 880-15995
[ASAE PAPER 79-DET-9] 25 p0041 A80-15705 Investigation of the effect of piston inductance	ELECTRIC MOTORS  Theory of the direct coupling between D.C. motors
on energetic characteristics of a piston linear generator with a ferromagnetic core	and photovoltaic solar arrays 25 p0005 A80-11334
25 p0083 A80-20066 Night storage and backup generation with electrochemical engines study of electric	Semiconductor alternating-current motor drives and energy conservation 25 p0034 A80-13861
generators for electrochemical engines using photovoltaic energy conversion	Hydrogen-electric power drives [SIAC-PUB-2203] 25 p0113 N80-11604
[LA-UR-78-1149] 25 p0113 N80-11596 Electric power generation and LNG evaporation with the aid of gas turbines within a closed-cycle	ELECTRIC POTENTIAL  Current collectors for sodium-sulphur batteries  25 p0013 A80-11867
process [AED-CONF-78-155-010] 25 p0121 N80-12291	Calculation of the low-frequency electromagnetic field of MHD machines encapsulated in a common screening shell
Bi-directional four quadrant (BDQ4) power converter development [NASA-CB-159660] 25 p0154 N80-14480 Commercialization strategy report for hydrothermal	25 p0030 A80-12896 Volt-second consumption during the start-up phase of PLT
electric and direct heat application project planning of geothermal resources for geothermal	25 p0040 A80-15532 Nonequilibrium thermodynamics of fuel cells - Heat
energy conversion for heating electricity generation [TID-28840-DRAFT] 25 p0157 N80-14508	release mechanisms and voltage 25 p0084 A80-20274 ELECTRIC POWER
Preliminary design of axial flow hydrocarbon turbine/generator set for geothermal applications	Recent advances in zinc-bromine batteries 25 p0010 A80-11846
[EPRI-ER-513] 25 p0160 N80-14536 Investigation of the viability and cost	Power from ocean waves 25 p0045 A80-16655
effectiveness of solid fuel gasifiers close coupled to internal combustion engines for 200 kWe power generation	Photovoltaic solar cell array used for supplemental power generation 25 p0061 A80-18129
[DOE/RL-90476-13] 25 p0169 N80-15293  Demonstration of a nitrogen based carburizing atmosphere: Energy consumption of the	An electrochemical heat engine for direct solar energy conversion 25 p0061 A80-18131
endothermic generator [CONS/5058-T1] 25 p0173 N80-15591	EPRI new energy resources department strategy paper [EPRI-ER-979] 25 p0097 N80-10610
ELECTRIC HYBRID WEHICLES  Electric and hybrid vehicles Book  25 p0041 A80-15658	Systems engineering for power, program report [DOE/ET-0012/2-REV] 25 p0140 M80-13637 ELECTRIC POWER PLANTS
A survey of electric and hybrid vehicle simulation programs	Lignite fuel and power-plant availability 25 p0004 A80-10944
[NASA-CR-162457] 25 p0118 N80-11954 Mechanical energy storage technology development for electric and hybrid vehicle applications	170 MW pressurized fluidized bed combustion electric plant 25 p0014 A80-11962
[UCRL-81786] 25 p0128 N80-12596 Electric and hybrid vehicles: Commercialization	The near term potential for gasification-combined cycle electric power generation
phase 3 planning [DOE/ERD-0004] 25 p0151 N80-14349 Commercialization strategy report for electric and	25 p0015 A80-11970 Coal to electricity - Integrated gasification combined cycle
hybrid vehicles [TID-28858-DRAFT] 25 p0166 N80-14972 ELECTRIC BOTOR VEHICLES	25 p0015 A80-11971 Survey of MHD plant applications 25 p0015 A80-11972
The electric trolley bus - Revisited 25 p0002 A80-10321 Gasoline's alternatives are feasible	Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium
25 p0034 A80-13225 The promise and puzzle of electric vehicles	25 p0017 M80-11986 Area load-frequency control software package for electric power system operation
25 p0039 A80-15175 Electric and hybrid vehicles Book 25 p0041 A80-15658	25 p0022 A80-12735 Economics of small solar power plants in rural areas
Effect of mechanical energy storage systems on the characteristics of electric vehicles	25 p0024 A80-12754 SSPS project - Two solar power plants in Spain
[UCRL-82710] 25 p0102 N80-10664 A survey of electric and hybrid vehicle simulation programs	25 p0032 A80-13180 Energy-storage systems pumped-storage hydroelectric plants, compressed-air
[NASA-CR-162457] 25 p0118 N80-11954 The USAF Academy flywheel-electric car preliminary	<pre>energy-storage plants, electric batteries and hot water storage</pre>
design report [AD-A071242] Demand for special performance vehicles, 1975 - 2025	Heat and electricity from the sun using parabolic dish collector systems
[UCRL-13911] 25 p0133 N80-12960 Advanced batteries for electric vehicles: A look at the future	The physics of closed cycle MED power generation 25 p0043 A80-16264
[CONF-790484-1] 25 p0159 N80-14531 Review of industrial participation on the ANL lithium/iron sulfide battery development program	Energy from ocean thermal gradients 25 p0044 A80-16652 The Coriolis program electric power from
for energy storage and electric vehicles [CONF-780852-1] 25 p0164 N80-14573	mocred counterrotating turbine arrays in warm water current
Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAPI]	25 p0044 a80-16653

ELECTRIC POWER SUPPLIES SUBJECT INDEX

Screening evaluation of novel power cycles integrated with gasification plants [EPRI-AF-1002] 25 p0096 Algorithm for calculating the shading and blocking of the heliostats of a solar electric power plant 25 p0051 A80-17246 Structure of an averaged statistical pencil of 25 p0096 N80-10605 Safety and environmental implications DOE/Sandia Midtemperature Solar Systems Test Facility
[SAND-78-2292C] 25 p0097 N80-10609
Sensitivity study of Brayton cycle power plant rays reflected from a heliostat 25 p0051 A80-17247 Recent progress in inertial confinement fusion research at the los Alamos Scientific Laborator performance [SAND-78-8020] Impact of technology and maintainability on economic aspects of tokamak power plants
25 p0059 A80-17884
Analysis of systems for the generation of electricity from solar radiation [SAND-78-8020] 25 p0098 N80-10626 Geothermal resources and technology in the United [PB-296623/2] [PB-296623/2] 25 p0102 N80-10677 Effect of operating temperatures on the cost of energy from solar thermal electric power plants [SAND-79-0801] 25 p0124 N80-12563 Project CESA-1, a 1 MW solar power plant in Almeria [AED-CONF-78-212-011] 25 p0130 N80-12614 Requirements assessment of wind power plants in electric utility systems. Volume 3: Appendixes [EPRI-ER-978-VOL-3] 25 p0139 N80-13628 OTEC platform configuration and integration. 25 p0102 N80-10677 The impact of a conceptual solar thermal electric conversion plant on regional meteorological conditions - A numerical study 25 p006C A80-18125 Optimization of a point-focusing, distributed receiver solar thermal electric system [ASBE PAPER 79-WA/SOL-11] 25 p0065 A80-18553 SOLSTEP - A computer model for predicting the OTEC platform configuration and integration, appendixes to volume 2 [COE/ET-4065/1-VOL-2-APP] 25 p0147 N80-13713 OTEC platform configuration and integation. Volume
3: Project plan
[DOE/ET-4065/1-VOL-3] 25 p0148 N80-137 thermodynamic and economic performance of solar thermal power plants [ASME PAPER 79-WA/SOL-12] 25 p0068 A80-18 [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714 solar thermal power systems advanced solar thermal 25 p0068 A80-18579 Analysis of convective heat loss from the receiver of solar power plants
[ASME PAPER 79-WA/HT-36] technology project, advanced subsystems development [ASME PAPER 79-WA/HT-36] 25 p0068 A80-18582 A solar thermal electric power plant for small [NASA-CR-162546] 25 p0155 N80-14491 communities
[ASHE PAPER 79-WA/SOL-7] 25 p0069 A80-18584
Small solar thermal electric power plants with Simulation approach for tase-line energy-siting analysis [CONF-790459-22] 25 p0157 N80-14511 early commercial potential
[ASME PAPER 79-WA/SOL-9] 25 p0069 A80-18586
The effects of regional insolation differences Solid electrolyte fuel cell for electric power generation --- nonaqueous electrolyte fuel cells development for electric power plants [BNI-26238] 25 p0158 N80-14522 Compressed air energy storage technology program --- concept for supplying electric power to meet upon advanced solar thermal electric power plant performance and energy costs
[ASME PAPER 79-WA/SOL-15]
Design of the International Energy Agency 500 kWe distributed-collector solar thermal-electric 25 p0069 A80-18588 peak load demands [PNL-2935] 25 p0160 N80-14534 Superconducting magnetic energy storage for electric power system dynamic stabilization [LA-UR-79-1220] 25 p0160 N8 25 p0070 A80-18592 ASME PAPER 79-WA/SOL-61 Solar thermal central receiver systems
[ASME PAPER 79-WA/HT-38] 25 p0070 A8:
A small hybrid solar closed-cycle gas turbine
cogeneration plant concept based on today's 25 p0160 N80-14535 25 p0070 A80-18596 The 10 MW solar thermal pilot plant dynamic simulation. Volume 1: Computer program description [ATR-78 (7747)-1-VOL-1] 25 p0162 N80-14
The 10 MW solar thermal pilot plant dynamic simulation. Volume 2: Computer program source technology [ASME PAPER 79-WA/GT-3] 25 p0071 A80-18637 Screening evaluation of electric power cycles integrated with coal gasification plants
[ASME PAPER 79-WA/ENER-4] 25 p0071 A80-18644 listing [ATR-78(7747)-2-VOL-2] 25 p0162 N80-14551 Systems Studies for Central Solar Thermal Electric [CONF-780383] 25 p0162 N80-145 First experiences with the use of impactors in [CONF-780383] 25 p0162 N80-14558 Electric utility solar energy activities, 1978 large power plants 25 p0162 N80-14560 Control technology for coal-fired combustion in Northeastern U.S. A - Overview and sulfur emissions control. B - Particulates, NCx and [FPRI-ER-966-SR] 25 p0162 N80-14
Pundamental and semi-global kinetic mechanisms of
hydrocarbon combustion --- models for environmentally clean power plant design combined systems 25 p0074 A80-18883 [C00-4272-3] 25 p0165 N80-14587 SISYPUS - A simulation model for systematic Photovoltaic power system reliability considerations [NASA-TM-79291] 25 p0170 N80-15422 analyses of fusion power plants Department of Energy large solar central power systems semiannual review 25 p0079 A80-19597 A system for the control of tritium losses in LDmnu-rd-8511] 25 p0175 N80-15601 Department of Energy large solar central power systems semiannual review [SAND-79-85081 primary and steam circuits of a fusion power plant 25 p0C82 A80-19668 OTEC - Solar energy from the sea [SAND-79-8508] 25 p0175 N80-15602 Environmental development plan: Electric Energy 25 p0085 A80-20424 Possibility of conversion of solar corpuscular radiation energy into electrical energy 25 p0085 A80-20495 Systems [DCE/EDP-0038] 25 p0179 N80-156
EPA utility PGD (Plue Gas Desulfurization) survey:
December 1978 - January 1979 --- electric power 25 p0179 N80-15669 A thermodynamic assessment of OTEC open-cycle power systems 25 D0088 A80-20886 plants Analysis of resource pricing for geothermal [PB-299399/6] 25 p0179 N80-15682 electric power production PLECTRIC POWER SUPPLIES Power supply requirements for a tokamak fusion 25 p0088 A80-20889 Measurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants reactor 25 p0003 A80-10474 Improving the reliability of capacitance batteries in power grids with higher-harmonic sources 25 p0089 A80-21010 NASA-Lewis closed-cycle magnetohydrodynamics plant 25 p0008 A80-11671 analysis [NASA-TH-79249] Power sources 7: Research and development in 25 p0095 N80-10595 The first small power system experiment, Phase 1: Engineering experiment no. 1 --- solar thermal non-mechanical electrical power sources; Proceedings of the Eleventh International Symposium, Brighton, Sussex, England, September 25-28, 1978

25 p0095 N80-10596

electric power plants [NASA-CR-162417]

25 p0009 A80-11837

Development of a sodium/sulphur battery for rail applications	Optical and electrical investigations on annealed indium oxide selective coatings produced by
25 p0031 A80-13003 Autonomous power supplies for telecommunications	spray pyrolysis 25 p0023 A80-12747
25 p0033 &80-13211 Controllable d.c. power supply from wind-driven self-excited induction machines	Development of space quality silicon solar cells at B.A.B.C. 25 p0025 A80-12762
25 p0075 A80-19031 150-kV, 80-A solid state power supply for neutral beam injection	Gals-electrolyte photovoltaic cells 25 p0026 l80-12774
25 p0080 A80-19617 The combined d.c. power supply for JET Joint	Influence of the loading factor on the performance characteristics of series MED generators 25 p0061 A80-18137
European Torus 25 p0080 A80-19621 Main power supplies for large toroidal fusion	Characteristics of series channels with a diminishing electrode-commutation angle in the transition section MHD generators
experiments 25 p0082 &80-19670	ELECTRICITY 25 p0061 A80-18139
Solar cells in practice 25 p0083 A80-19844	The marginal cost of electricity used as backup for solar hot water systems - A case study
Deep space network feasibility study of terminating Southern California Edison	25 p0021 A80-12436 Puel choice and aggregate energy demand in the
electrical service to Goldstone cost	commercial sector electricity, natural gas,
analysis of electric power supplies and waste energy utilization	and fuel oil [ORNL/CON-27] 25 p0126 N80-12580
25 p0091 N80-10263 Power supply reguirements for a tokamak fusion reactor	A regional approach to forecasting electric energy requirements for environmental assessments 25 p0130 N80-12619
[ANL/PPP/TM-119] 25 p0104 N80-10918 Demand management demonstration project. Stage 1: Development of residential load characteristics.	Cogeneration opportunities conferences [CONF-7806118] 25 p0145 B80-13681 ELECTROCATALYSTS
Stage 4: Demonstration of residential incremental cost pricing implemented by	Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites
time-of-day metering 25 p0118 N80-11941	25 p0012 A80-11861
Peasibility of compressed air energy storage as a	Non-sintered plastic-bonded nickel oxide
peak shaving technique in California, Volume 2 [SAN-1331-T1] 25 p0174 N80-15596 ELECTRIC POWER TRANSHISSION	electrodes with open structure and their electrochemical performance
Energy analysis of the basic materials utilized in electric power transmission systems	25 p0009 A80-11839 Hydrogen /Hydride/-air secondary battery 25 p0011 A80-11848
[HCP/T5043-01] 25 p0157 N80-14510 Environmental development plan: Electric Energy	Studies on the Ca-CaCrO4 and Li-Al-PeS2 systems for thermal battery applications
Systems [D0E/EDP-0038] 25 p0179 N80-15669	25 p0012 A80-11854 Heat generation in Li/SOC12 cells
BUILETRIC SWITCHES  Bulletin of the Division of Mechanical Engineering and the National Aeronautical Establishment	25 p0012 A80-11855 Projected mechanism for thionyl chloride and sulphuryl chloride cathode reactions
design of a gas pipeline station control system and a railway switch car [AD-A074885] 25 p0182 N80-16022	25 p0012 A80-11856 Behaviour of the secondary lithium electrode on alloying substrates in propylene carbonate based
POWER loss in photovoltaic arrays due to mismatch	electrolytes 25 p0012 A80-11857
in cell characteristics 25 p0028 A80-12815	Utilization of transition metal phosphorus trisulphides as battery cathodes
Optimization of multi-layer front-contact grid patterns for solar cells 25 p0028 A80-12816	The electrochemical characteristics of iron sulphide in immobilized salt electrolytes
ELECTRICAL IBSULATION Partial discharge performance of lapped plastic	25 p0013 A80-11862 Electrochemical storage of photovoltaic solar energy
insulation for superconducting power transmission cables and the dielectric strength	25 p0025 A80-12757 Plastic bonded electrodes for nickel-cadmium
of supercritical helium gas [BNL-24779] 25 p017C N80-15346	accumulators. I - Cadmium electrode 25 p0043 A80-16147
ELECTRICAL MEASUREMENT  Megavolt and megampere diagnostic techniques for pulsed power particle beam fusion drivers	An electrochemical heat engine for direct solar energy conversion
25 p0046 A80-16745 Measurements of minority-carrier diffusion length	25 p0061 180-18131 Photoelectrochemistry and heterogeneous photocatalysis at semiconductors
in heterojunction solar cells 25 p0086 A80-20717	25 p0073 A80-18750 Nonequilibrium thermodynamics of fuel cells - Heat
Measurement techniques for high-power semiconductor materials and devices: application to energy technologies	release mechanisms and voltage 25 p0084 A80-20274 Multi-year plan for thermal and mechanical energy
[PB-298574/5] 25 p0121 N80-12300 Description of the MIT/Lincoln Laboratory	storage program [DOE/ET-0109] 25 p0142 N80-13658
photovoltaic systems test facility [COO-4094-41] 25 p0178 N80-15638	<pre>BLECTROCHEMICAL OXIDATION    The methanol-air fuel cell - A selective review of</pre>
The electrochemical characteristics of iron	methanol oxidation mechanisms at platinum electrodes in acid electrolytes
sulphide in immobilized salt electrolytes 25 p0013 A80-11862	BLECTROCHEMISTRY 25 p0042 A80-16146
Computer modelling of electrically parallel arrays of sodium-sulphur cells	Projected mechanism for thionyl chloride and sulphuryl chloride cathode reactions
25 p0013 A80-11865 Some aspects of sodium-sulphur batteries	25 p0012 A80-11856 Night storage and backup generation with
25 p0013 A80-11866	electrochemical engines study of electric generators for electrochemical engines using
	photovoltaic energy conversion [LA-UR-78-1149] 25 p0113 880-11596
•	25 80.15 800-11590

SUBJECT INDEX BLECTROMAGNETS

On the properties of a fuel cell electrolyte
[AD-A072864] 25 p0123 N80-12554
Solid electrolyte fuel cell for electric rower Two-dimensional heating analysis of fusion blankets for synfuel production 25 p0082 A80-19665 Hydrogen production. Citations from the international aerospace abstracts data base [NTIS/PS-79/0773/6] 25 p0094 N80-10401 generation --- nonaqueous electrolyte fuel cells development for electric power plants 25 p0 158 N80-14522 [BN1-26238] BLECTROCONDUCTIVITY High temperature electrolysis --- synthetic fuel production Simplified theory of nonuniform electrical [BNL-26331] 25 p0167 N80-15227 conduction for an open cycle MHD generator with shaped magnetic induction ELECTROLYTES 25 p0047 A80-16997 Development of silver-hydrogen cells RECTRODEPOSITION 25 p0010 A80-11843 Cadmium electrodes with improved surface characteristics for alkaline storage batteries Neutral electrolyte aluminium-air battery 25 p0011 A80-11849 25 p0009 A80-11838 · Behaviour of the secondary lithium electrode on Selective black nickel coatings on zinc surfaces by chemical conversion --- for high sclar energy alloying substrates in propylene carbonate based electrolytes 25 p0012 A80-11857 absorption The electrochemical characteristics of iron sulphide in immobilized salt electrolytes 25 p0060 A80-18126 Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p01 25 p0013 A80-11862 25 p0 145 N80-13678 Water electrolysis --- for hydrogen production 25 p0052 A80-17576 Principles of photoelectrochemical solar energy ELECTRODES A comprehensive model for photovoltage generation at metal electrodes in contact with solutions of conversion 25 p0074 A80-18990 fluorescent dyes 25 p0004 A80-10879 Influence of electrolyte composition on electrode kinetics in the molten carbonate fuel cell Cadmium electrodes with improved surface characteristics for alkaline storage batteries [CCNF-781063-2] 25 p0115 N80-11615 On the properties of a fuel cell electrolyte
[AD-A072864] 25 p0123 %80-1:
Distribution and movement of electrolyte in fuel 25 p0009 A80-11838 Non-sintered plastic-bonded nickel oxide 25 p0123 N80-12554 electrodes with open structure and their electrochemical performance cells and tatteries 25 p0009 A80-11839 25 p0138 N80-13619 High-efficiency alkaline accumulator with cadmium mass treated with oxalic acid RLECTROLYTIC CRLLS Lead oxides-lithium cells 25 p0010 A80-11842 25 p0012 A80-11859 Phosphoric acid fuel-cell electrocatalysts from Zinc-bromine battery studies 25 p0010 A80-11845 pyropolymer ceramic composites 25 p0012 A80-11861 Recent advances in zinc-bromine batteries Hydrogen /Hydride/-air secondary tattery
25 p0011 &80-11848 25 p0010 A80-11846 The electrochemical characteristics of iron sulphide in immobilized salt electrolytes
25 p0013 A00-11862 Utility fuel cells for Sweden Gals-electrolyte photovoltaic cells 25 p0011 A80-11852 25 p0026 A80-12774 Behaviour of the secondary lithium electrode on alloying substrates in propylene carbonate based The methanol-air fuel cell - A selective review of methanol oxidation mechanisms at platinum electrodes in acid electrolytes electrolytes 25 p0012 A80-11857 25 p0042 A80-16146 Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells Thionine coated electrode for photogalvanic cells 25 p0051 A80-17343 25 p0035 A80-14588 Photogalvanic cells The methanol-air fuel cell - A selective review of 25 p0073 A80-18749 methanol oxidation mechanisms at platinum electrodes in acid electrolytes Lithium inorganic electrolyte battery development
[AD-A073858] 25 p0157 N80-14505
Development of Li-Al/FeS cells with LiCl-rich 25 p0042 A80-16146 electrolyte [CONF-7810135-21 Plastic bonded electrodes for nickel-cadmium 25 p0176 N80-15614 accumulators. I - Cadmium electrode BLECTROMAGNETIC ABSORPTION
Wave absorption and superreflectivity of laser 25 p0043 A80-16147 Thionine coated electrode for photogalvanic cells 25 p0051 A80-17343 plasmas due to electromagnetic structure Photoelectrochemistry and heterogeneous resonances 25 p0057 A80-17871 photocatalysis at semiconductors 25 p0073 A80-18750 ELECTROMAGNETIC PIELDS Influence of electrolyte composition on electrode kinetics in the molten carbonate fuel cell [CONF-781063-2] 25 p0115 N80-11615 Calculation of the low-frequency electromagnetic field of MHD machines encapsulated in a common screening shell BLECTRODYBANICS 25 p0030 A80-12896 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138 Investigation of the effect of piston inductance on energetic characteristics of a piston linear ELECTROMAGNETIC PUMPS Simultaneous investigation of transverse and generator with a ferromagnetic core longitudinal edge effects in the channel of a 25 p0083 A80-20066 plane MHD induction pump User's manual for the magnetohydrodynamic 25 p0030 A80-12897 generator channel code, MHDCHN ELECTROMAGNETIC RADIATION Physical modelling of the electromagnetic heating of oil sand and other earth-type and biological SAND-78-1260] 25 p0132 N80-12894 ELECTROL YSIS The R&D programme of the European communities in the field of hydrogen - Progress and results 25 p0032 A80-13195 materials 25 p0020 A80-12311 RECTROMAGNETS Seminar on Hydrogen as an Energy Vector: its Production, Use and Transportation, 1st, Brussels, Belgium, October 3, 4, 1978, Proceedings 25 p0041 A80-15976 Water electrolysis --- for hydrogen production 25 p0052 A80-17576 Wind energy conversion system with electromagnetic stabiliser 25 p0031 A80-13004

ELECTROBECHANICAL DEVICES		Design of photovoltaic systems for residential
Change in rate of conducting-pi	ston motion and the	applications in the United States
characteristics of field-diff	usion processes in	[SAND-78-2186C] 25 p0171 N80-15566
a linear electromechanical en	25 p0083 A80-20069	Status of the US Department of Energy photovoltaic concentrator development project
Coal-shale interface detection [NASA-CASE-MFS-23720-2]	system 25 p0152 N80-14423	[SAND-78-2187C] 25 p0172 N80-15578 Plywheel energy storage interface unit for
ELECTRON BRANS Kinetics of the processes in a	nlasma produced by	photovoltaic applications [COO-4094-44] 25 p0175 %80-15609
an electron beam in a dense i	nert gas	[COO-4094-44] 25 p0175 880-15609 ENERGY BANDS
Developments in Sandia Laborato	25 p0007 A80-11612	Analysis and evaluation of isotype heterojunction solar cells
fusion programme	-	25 p0087 A80-20734
Pulsed power for fusion	25 p0057 A80-17867	ENERGY CONSERVATION
[SAND-79-0933C]	25 p0181 N80-15908	Energy conservation through recycling 25 p0003 A80-10842
ELECTRON IRRADIATION		Semiconductor alternating-current motor drives and
Electron radiation damage of (A cells	•	energy conservation 25 p0034 A80-13861
[NASA-CR-162425] ELECTRON SCATTERING	25 p0110 N80-11564	Energy conservation - Aerodynamic drag reduction of intercity buses
Steady-state currents driven by		25 p0050 180-17227
damped lower-hybrid waves	25 p0 084 A80-20157	An evaluation of thermal energy storage for residential air conditioning applications
BLECTRONIC CONTROL	-	[ASME PAPER 79-WA/HT-31] 25 p0071 A80-18631
Vehicle emissions control and i development	ts effect on engine	Aircraft Energy Efficiency (ACEE) status report 25 p0091 N80-10206
150-kW 90-B golid state never	25 p0037 A80-14708	Another look at energy conservation
150-kV, 80-A solid state power beam injection	supply for neutral	[LBL-7893] 25 p0097 N80-10611 Energy conservation and the environment: conflict
	25 p0080 A80-19617	or complement
ELECTROPLATING  Behaviour of the secondary lith	ium electrode on	[LBL-7882] 25 p0098 N80-10621
alloying substrates in propyl	ene carbonate based	Department of Energy workshops on industrial energy conservation reporting
electrolytes	25 -0012 100 11057	[DCE/CS-1830-T3] 25 p0099 N80-10635
Bogus-type treatment of Cu2S-Cd	25 p0012 A80-11857 S solar cells using	Aircraft fuel. Citations from the International Aerospace Abstracts Data Base
deposition from solution	_	[NIIS/PS-79/0764/5] 25 p0102 N80-10668
ELECTROSTATIC WAVES	25 p0028 A80-12788	Energy saving strategies for federal procurement [PB-296969/9] 25 p0103 N80-10678
Non-stochastic heating of magne electrostatic wave	tized plasma by	Energy initiatives of the 95th Congress
	25 p0043 A80-16194	[GPO-42-797] 25 p0109 N80-11557 An evaluation of the NASA Tech House, including
Non-linear theory of collective laser-pellet interaction and	processes in	live-in test results, volume 1
ruser-perfet interaction and	25 p0057 A80-17870	[NASA-TP-1564] 25 p0109 N80-11559 Transfer of energy conservation technology to
Theory of cavitons in laser-irr	adiated plasmas	industry. A preliminary survey of existing
EMERGENCIES	25 p0057 A80-17872	mechanisms [ANL/EES-TM-28] 25 p0111 N80-11576
Standby conservation plan no. 2	: Emergency	[ANL/EES-TM-28] 25 p0111 M80-11576 Implementing energy conservation strategies in
<pre>building temperature restrict Need, rationale, operation</pre>	ions. Authorities:	energy materials transport: U. S. Department of
[DOE/ERA-0048]	25 p0126 N80-12582	Energy and other government agency rolicy-making decisions
EMISSION SPECTRA Laboratory evaluation of two la	ser fluoreserser	[ANL/EES-TM-32] 25 p0111 N80-11577
systems	set fidoresensor	Standby conservation plan no. 2: Emergency building temperature restrictions. Fconomic
Tananasi alaasa salaa sasaasi	25 p0031 A80-12964	analysis
Improved planar solar convertor neodymium and holmium glasses	based on uranyl	[DOE/ERA-0047] 25 p0112 N80-11593 Analysis of financial programs for energy
· ·	25 p0083 A80-19740	conservation: Market simulation (penetration)
ENDOTHERNIC REACTIONS  Demonstration of a nitrogen base	ed carburizing	model
atmosphere: Energy consumpti		Energy conservation: Policy issues and end-use
endothermic generator [CONS/5058-T1]	25 -0172 890 15501	scenarios of savings potential. Part 3: Policy
ENERGY ABSORPTION FILMS	25 p0173 N80-15591	barriers and investment decisions in industry [LBL-7896-PT-3] 25 p0114 N80-11614
The scope of effective medium to		National environmental/energy workshor assessment,
metal particle solar absorber	25 p0C29 A80-12835	<pre>phase 3. Energy programs directory of courses available</pre>
Plat-plate solar collector mate	rials	[PB-298587/7] 25 p0117 N80-11634
Selective black nickel coatings	25 p0035 A80-14409	Inventory of advanced energy technologies and energy conservation research and development,
by chemical conversion for	r high solar energy	1976-1978, volume 1
absorption	25 p0060 A80-18126	[GFC-41-481] 25 p0122 N80-12550
A simplified technique for compa	aring the	Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities:
effectiveness of collector ab:		Need, rationale, operation
Novel concentrator photovoltaic	25 p0061 A80-18133 converter system	[DOE/FRA-0048] 25 p0126 N80-12582 Constraints on energy conservation
development [SAND-79-7040]	_	[ORAU/IEA-78-17(M)] 25 p0127 N80-12594
Studies of directly absorbing f	25 p0143 N80-13661 luids for	Fundamental aspects of energy conservation policy [CRAU/IEA-78-20(M)] 25 p0127 N80-12595
mid-temperature solar thermal	applications	Energy conservation technology education program
[MLM-2625-OP] Thermal degradation of a black of	25 p0160 N80-14540 chrome solar	[HCP/M2165] 25 p0129 N80-12606 National Energy Act of 1978: A regional assessment
selective absorber coating: 5	hort term	[PB-296479/9] 25 p0130 N80-12615
[LBL-8857]	25 p0161 N80-14549	Energy planning with solar and conservations:
		Individual values and community choice [LA-UR-79-1599] 25 p0142 N80-13653
		F 200 13033

SUBJECT INDEX ENERGY CONVERSION

Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0 147 880-13707 Highlights of the energy technology programs [BNL-50959] 25 p0 157 880-14512 Mission analysis for the Federal fuels from biomass program. Volume 3: Feedstock availability [SAN-0115-T1] 25 p0168 N80-15276 Measurement of energy to heat houses: Initial study [PB-299448/2] 25 p0170 N80-15304 Report to the Congress on the coordination of Federal energy conservation programs involving state and local governments Demonstration of a nitrogen based carburizing atmosphere: Energy consumption of the endothermic generator [CONS/5058-T1] 25 p01 [DOE/TIC-10127] 25 p0157 N80-14515 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COO-2893-10] 25 p0159 LCUMB/DUD8-T1] 25 p0173 M80-15591 Energy supply and demand in the short term: 1979 and 1980 25 p0 159 N80-14524 Princy Policy and Conservation Act (Public Law 94-163) as amended by the National Energy Conservation Policy Act (Public Law 95-619).
Title 10: Energy. Chapter 2: Department of Energy. Subchapter D: Energy Conservation. [ DOE/EIA-0184/4] 25 p0174 N80-15593 International energy assessment [COE/EIA-0184/1] 25 p0174 N80-15594 Federal Energy Data System (FEDS) statistical Part 430: Energy conservation program for summary update [DOE/EIA-0192] 25 p0177 N80-15630 consumer products [DOE/CS-0056] 25 p0163 N80-14567 Energy demand in the developing countries 25 p0177 N80-15631 [DOE/EIA-0183/10] ENERGY CONVERSION Impact of new instrumentation on advanced turbine research [NASA-TM-79301] 25 p0166 N80-15133 Coal conversion technologies - Some health and environmental effects Energy optimal use of waste paper 25 p0174 N80-15595 [COO-2893-9] 25 p0006 A80-11369 National program plan for passive and hybrid solar heating and cooling [DOE/CS-0089] 25 p0174 N80-155 Annual review of energy. Volume 4 --- Book 25 p0008 A80-11826 25 p0174 N80-15598 The conversion of ethylene glycol with air in. Economic impacts of energy conservation and alkaline fuel cells 25 p0011 A80-11850 renewable energy sources [UCRL-15087] 25 p0177 N80-15633 Survey of MHD plant applications Energy conservation through point source recycle with high temperature hyperfiltration ---25 p0015 A80-11972 Study of photochemical processes in the ferrous-thionine system --- photogalvanic effect textile industry [PB-299183/4] in dye redox systems for chemical energy 25 p0180 N80-15688 ENERGY CONSUMPTION conversion 25 p0027 A80-12783 Models of worldwide energy demand and consumption 25 p0002 A80-10228 Measurements on a 15 kW wind energy conversion Review of scenarios of future U.S. . energy use 25 p0009 A80-11832 25 p0039 A80-15329 Modeling and experimental analysis of a fluidic Volt-second consumption during the start-up phase generator 25 p0040 A80-15532 Global perspectives and options for long-range (ASME PAPER 79-DET-9] 25 p0041 A80-15705 Global options for short-range alternative energy strategies energy strategies 25 p0048 A80-17129 25 p0048 A80-17130 On the substitution of petroleum by other energy sources - Using the energy economics of West Germany as an example Are large concentration of atomic H storable in tritium-impregnated solid in H2 below 0.10 K 25 p0072 A80-18728 25 p0074 A80-19000 Change in rate of conducting-piston motion and the characteristics of field-diffusion processes in a linear electromechanical energy converter

25 p0083 A80-20069

Coal conversion systems: Technical data book Residential heat loss mapping of Farmington, New Mexico using airborne thermal scanning 25 p0 C84 A80-20242 Another look at energy conservation Crowing energy: Land for biomass farms
[PB-29650/5]
[Pb-29650/5]
[Pb-29650/5] [LBL-7893] 25 p0097 N80-10611 National energy plan 2 [DOE/TIC-10109] 25 p0097 N80-10618 Dynamics and control: Energy conversion, delivery, and demand analysis
[BNL-26045] 25 p009 Energy transition in California [UCRL-15003] 25 p0097 N80-10619 Energy supply and demand in the midterm: 1985, 1990, and 1995
[DOE/EIA-0102/52] 25 p0097 N80-25 p0099 N80-10633 Effect of mechanical energy storage systems on the 25 p0097 N80-10620 characteristics of electric vehicles [UCRL-82710] 25 p0102 N80-10664 Waste Heat Utilization: Proceedings of 1978 The Building Loads Analysis System Thermodynamics (BLAST) program, version 2.0 Input booklet --- for predicting energy consumption based on Engineering Foundation Conference [CONF-7808102] 2 25 p0102 N80-10665 structural size and meteorological data [AD-A072435] 25 p0107 M80-11259 Residential sector energy forecasts, national level for 1978-electricity, natural gas, number Wind energy systems: Program summary
[DOE/ET-0093] 25 25 p0111 N80-11578 Conversion of radiant energy into chemical energy [UCRL-TRANS-11427] 25 p0114 N80-11609 Characterization of coal-derived liquids and other two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-116 Demand management demonstration project. Stage 1: Development of residential load characteristics. 25 p0113 N80-11601 fossil fuel related materials employing mass spectrometry. Mass spectrometry and fossil-energy conversion technology: A review
[FE-2537-7] 25 p0120 M80-12198
Photoelectrochemical conversion of optical energy Stage 4: Demonstration of residential incremental cost pricing implemented by time-of-day metering [HCP/B8072-01] 25 p011 25 p0118 N80-11941 to electricity and fuels Constraints on energy conservation
[ORAU/IEA-78-17(M)]
Fundamental aspects of energy conservation rolicy
[ORAU/IEA-78-20(M)]
25 p0127 M80-12595 [AD-A072861] 25 p0123 N80-12556 Commercial application of molten carbonate fuel cell system [CGNF-790213-4] 25 p0123 N80-12557 New hybrid 1971 energy intensities, part 1 - computation of domestic energy consumption Commercialization task force for high Btu gasification [TID-28849] 25 p0135 M80-Research and development of an advanced process versus economic factors 25 p0135 N80-13286 [COO-4628-4-PT-1] 25 p0 158 N80-14516 for conversion of coal to synthetic gasoline and other distillate motor fuels US energy flow in 1978 25 p0158 N80-14517 [ FE-1800-30] 25 p0135 N80-13291 Synfuel (hydrogen) production from fusion power [LA-UR-79-1115] 25 p0136 N80-13296

A-29

25 p0032 A80-13024

25 p0034 A80-13863

Gasohol - Does it or doesn't it produce positive

net energy

Analysis of binary thermodynamic cycles for a Utility fuel cells for Sweden moderately low-temperature geothermal resource
[TRIE-1365] 25 p0139 N80-13627
Solar thermal electric plants in hydroelectric grid 25 c0011 A80-11852 Economic performance - Evaluations for solar energy 25 p0014 A80-11956 --- Lower Colorado region
[DOE/SF/10505-1] 25 p0143 N80-13663
Conceptual designs for two reject heat systems for Techniques for evaluation of advanced cogeneration technologies 25 p0014 A80-11957 a Brayton closed-cycle converter Coal to electricity - Integrated gasification [LA-7821-MS] 25 p0144 N80-13677 combined cycle Possil energy program. 1. Hining research and development: Coal preparation and analysis [IS-4655] 25 p0145 N80-13679 25 p0015 A80-11971 Supply, harvesting and nature of forest biomass as a fuel Critical review and assessment of environmental 25 p0017 A80-11982 and safety problems in hydrogen energy systems
[LA-7820-PR] 25 p0145 880-13690 Commercial building and industrial applications for solar energy Environmental development plan: Wind energy 25 p0017 A80-11985 conversion Near-term prospects for solar industrial process [ DOE/EDP-00301 25 p0147 N80-13701 cesium TELEC experiment at Lewis Research Center [NASA-CR-159729] 25 p0151 N80-143 25 p0018 A80-11988 25 p0151 N80-14386 Improvements in the performance of a low cost thin A probabilistic study of wind-electric conversion film solar cell systems from the point of view of reliability and capacity credit 25 p0018 A80-11989 Performance of silicon solar cells in front of a 25 p0153 N80-14475 water absorber 25 p0019 A80-12125
Processing of coal, oil sand and heavy oil in situ
by electric and magnetic fields Highlights of the energy technology programs
[BNI-50959] 25 p0157 N80-14512 Proceedings of the Thermal Energy Storage in Aquifers Workshop 25 p0019 A80-12310 [LBL-8431] 25 p0160 N80-14533 A microeconomic approach to passive solar design Ferformance, cost, optimal sizing and comfort Engineers guide to solar energy [PB-297043/2] 25 p0164 N80-14574 analysis 25 p0021 A80-12433 Passive and active residential solar heating: A Environmental options for coal use [LA-UR-79-1393] 25 p0 165 Conversion of cellulosic and waste polymer 25 p0 165 N80-14584 comparative economic analysis of select designs
25 p0021 A80-12435
A high performance porous flat-plate solar collector material to gasoline [COO-2982-38] 25 p0169 N80-15291 Investigation of the viability and cost effectiveness of solid fuel gasifiers close coupled to internal combustion engines for 200 25 p0021 A80-12438 Energy meter for solar air systems 25 p0022 A80-12609 kWe power generation
[DOE/RL-90476-13] 25 p0169 N80-15293
Novel scheme for making cheap electricity with Helicstat Beam Characterization System --computerized video radiometer technique for solar collector nuclear energy
[OCID-18153-REV-1] 25 p0022 A80-12627 25 p0171 N80-15564 Studies of photogalvanic cells Research and evaluation of biomass 25 p0023 A80-12743 resources/conversion/utilization systems (market/experimental analysis for development of Effect of boosters on the performance of flat plate collector a data base for a fuels from biomass model) LCUU-5022-5] 25 p0172 N80-15576

Heat pump centered integrated community energy
systems; System development
[ANL/ICES-TM-26] 25 p0173 N80-15500
Utilization of many 25 p0023 A80-12744 Solar energy flat plate collectors - Optimization of air gap 25 p0023 A80-12745 An investigation of experimental performance of a Utilization of waste heat from Pederal facilities compound parabolic concentrator [ORO-5523-T1] 25 p0173 N80-15590 25 p0023 A80-12748
Storage of solar heat by solid-liquid phase change
25 p0024 A80-12755
Review of thermal storage materials from the view Turbomachinery options for an underground pumped hydroelectric storage plant [CONF-790803-50] 25 p0177 N80-19 25 p0177 N80-15629 Flywheel energy storage and conversion system for point of solar energy application photovoltaic applications [COO-4094-48] ENERGY CONVERSION EFFICIENCY 25 p0025 A80-12756 25 p0178 N80-15635 Role of oxide layer in Schottky barrier solar cells 25 p0025 A80-12761 Forecasting automobile fleet fuel efficiency Effect of concentrated sunlight on the various 25 p0002 A80-10324 parameters of the p-n junction solar cell Salinity gradient power - Otilizing vapor pressure 25 p0025 A80-12764 differences Experimental study of MOS solar cells under 25 p0003 A80-10524 concentration Second-law analysis of solar-thermal processes 25 p0026 A80-12769 Annealing and degradation studies of ceramic CdS The optimal design of solar cell grid lines solar cells 25 p0005 A80-11335 25 p0026 480-12771 Concentration ratio and efficiency in Efficiency of quantum-utilizing solar energy thermophotovoltaics converters in the absence of intraband 25 p0005 A80-11336 thermalization Derivation of method for predicting long term average energy delivery of solar collectors The role of coal gasification and liquefaction in improving the efficiency of energy use - Comparative end use efficiency of the use of 25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of coal: Substitute natural gas and other gases concentrating solar collectors versus electric power production 25 p0005 A80-11340 25 p0030 A80-12941 The semiconductor-insulator-semiconductor /indium A pistonless Stirling engine - The traveling wave tin oxide on silicon/ solar cell - Characteristics and loss mechanisms beat engine 25 p0031 A80-13011 25 p0006 A80-11368 The possibilities of increasing gas turbine Solar panels exposed to cosmic rays efficiency

25 p0008 A80-11825

25 p0010 A80-11841

Improvement of the high-rate discharge behaviour

of the nickel electrode

Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy 25 p0035 A80-13986 Some problems with variable operation of an MHD generator Thermodynamic analysis of thermomechanical solar energy converters operating in conjunction with solar cells 25 p0035 A80-14592 Solar collectors as energy converters 25 p0036 A80-14670 Solar cell spectral response characterization 25 p0037 A80-14685 Efficient indium tin oxide/polycrystalline silicon solar cells 25 p0039 A80-15136 Calculated and measured efficiencies of thin-film shallow-homojunction GaAs solar cells on Ge 25 p0039 A80-15141 Calculation of steam generation with parabolic solar collectors 25 p0039 A80-15328 The Kirsten rotor as a wind turbine 25 p0039 A80-15330 Investigation of absorptive and radiative characteristics of an ideal selective surface --- for solar energy absorbers 25 p0044 A80-16632 The A-I/1-y/B-I/y/C-IIID-VI/2x/E-VI2/1-x/
pentenary alloy system and its application to photovoltaic solar energy conversion 25 p0046 A80-16786 Efficiency improvements in bioenergy conversion systems 25 p0047 A80-16995
The relative value of energy derived from municipal refuse 25 p0051 A80-17352 Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857 Developments in Sandia Laboratories particle beam fusion programme 25 p0057 A80-17867 Calculations of inertial confinement fusion gains using a collective model for reheat, bremsstrahlung and fuel depletion for highly efficient electrodynamic laser compressions 25 p0C58 A80-17875 Analysis of systems for the generation of electricity from solar radiation 25 p0060 A80-18124 Solar heating system performance estimation using sinusoidal inputs 25 p0061 A80-18130 Performance and analysis of a 'series' heat pump-assisted solar heated residence in Madison, Wisconsin 25 p0061 A80-18132 Linear synchronous motor development for urban and rapid transit systems 25 p0062 A80-18167 Power conversion efficiency monitoring in photoelectrochemical and other solar cells 25 p0062 A80-18214
Relating computer simulation studies with interface state measurements on MIS solar cells 25 p0062 A80-18231 Results of duct area ratio changes in the NASA Lewis H2-O2 combustion MHD experiment
[AIAA PAPER 80-0023] 25 p0 Lewis H2-O2 combustion MHD experiment
[ATAA PAPER 80-0023]

Relium penetration in evacuated solar collectors Theory and effect on their performance
[ASME PAPER 79-WA/SOL-17] 25 p0066 A80-18563

Design, evaluation, and testing of a moderately
concentrating, non-tracking solar energy collector
[ASME PAPER 79-WA/SOL-3] 25 p0067 A80-18570

Horizontal-axis wind generator performance with
varying tip speed ratio and rotor orientation

varying tip speed ratio and rotor orientation
[ASME PAPER 79-WA/SOL-2] 25 p0067 A80-18571
Optimization and comparison strategies for solar

energy systems
[ASME PAPER 79-WA/SOL-26] 25 p0067 A80-18573
SOLSTEP - A computer model for predicting the

thermodynamic and economic performance of solar thermal power plants [ASME PAPER 79-WA/SOL-12] 25 p0068 A80-18

25 p0068 A80-18579

[ COC-4577-81

SHADE - A computer model for evaluating the optical performance of two-axis tracking parabolic concentrators [ASME PAPER 79-WA/SOL-13] 25 p0068 A80-18581 Analysis of convective heat loss from the receiver of solar power plants
[ASME PAPEE 79-WA/HT-36] 25 p0068 A80-18582
A comparison of test results for flat-plate water-heating solar collectors using the FSF and ASHRAE procedures
[ASHE PAPER 79-WA/SOL-4] [ASME PAPER 79-WA/SOL-4] 25 p0069 A80-18585
Performance of heat pumps at elevated evaporating temperatures - With application to solar input [ASME PAPER 79-WA/SOL-19] 25 p0069 A80-18587
The effects of regional insolation differences upon advanced solar thermal electric power plant performance and energy costs
[ASME PAPER 79-WA/SOL-15] 25 p0069 A80-18588
Comparison of predicted and measured solar energy Comparison of predicted and measured solar energy system performance
[ASME PAPER 79-WA/SOL-39] 25 p0069 A80-18589 Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation
[ASME PAPER 79-WA/HT-67] 25 p0070 A80-18600 Blanket and power conversion system of NUWHAK --tokamak reactor 25 p0081 A80-19658
Two-dimensional heating analysis of fusion blankets for synfuel production 25 p0082 A80-19665 New concept for a system suitable for solar 25 p0083 A80-19976 Open cycle air turbine solar thermal rower system 25 p0083 A80-19989 Investigation of the effect of piston inductance on energetic characteristics of a piston linear qenerator with a ferromagnetic core 25 p0083 A80-20066 Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0084 A80-20141 OTEC - A comprehensive energy analysis 25 p0085 A80-20456 The effect of fluorescent wavelength shifting on solar cell spectral response 25 p0086 A80-20715 Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schottky barrier solar 25 p0086 A80-20716 Analysis and evaluation of isotype heterojunction solar cells 25 p0087 A80-20734 NASA-Lewis closed-cycle magnetohydrodynamics plant analysis [NASA-TH-79249] 25 p0095 N80-10595 Sensitivity study of Brayton cycle power plant performance 25 p0098 N80-10626 SAND-78-8020] Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561 Interaction in limited arrays of windmills:

Review of earlier results from a simple model
and a presentation of the capabilities of a dynamic PBL model [DM-26] 25 p0116 N80-11631 Comparison of geothermal energy with coal, oil, and natural gas for selected uses [DOE/ET-27139-1] 25 p0123 N80-12558 [ COE/ET-27139-1] Systems Analysis and testing (SAT) program
[SERI/PR-35-313] 25 p0124 N80-12565
Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONF-790520-7] 25 p0134 N80-13. Classification and technical review of dc-ac inverters for use in photovoltaic power systems 25 p0134 N80-13274 [COO-4094-25] 25 p0137 N80-13377
Theoretical analysis of multi-cell, high
efficiency broad spectral sensitivity solar cells 25 p0 138 N80-13617 Novel concentrator photovoltaic converter system development [SAND-79-7040] 25 p0 143 N80-13661 Evaluation of combined photovoltaic/thermal collectors

25 p0143 N80-13665

Materials for solar thermal conversion [COO-4557-1] 25 p0 143 N80-13670	The financing problems of Europe's gas industry
[COO-4557-1] 25 p0143 N80-13670 Self-reconfiguring solar cell system [NASA-CASF-LEW-12586-1] 25 p0153 N80-14472 Photovoltaic energy conversion in polymer films	25 p0032 M80-13174 The European economic community's policy concerning natural gas, coal and new sources of energy
25 p0154 N80-14477 Performance of residential solar heating and cooling system with flat-plate and evacuated	25 p0032 A80-13175 The R&D.programme of the European communities in the field of hydrogen - Progress and results
tubular collectors: CSU solar house 1 [COO-2577-16] 25 p0163 N80-14568 Space solar cells: High efficiency and radiation	25 p0032 A80-13195 A review of the U.S. wind energy programme
damage [NASA-TM-81387] 25 p017C N80-15554	25 p0042 A80-16083 Prospects - A social context for natural science global energy resource review
Characterization of three types of silicon solar cells for SEPS deep space missions. Volume 1: Current-voltage characteristics of OCLI BSF/BSR 10 ohm-cm, and BSR 2 ohm-cm cells as a function of temperature and intensity	25 p0044 A80-16651 Benewable energy prospects; Proceedings of the Conference on Non-Possil Puel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii,
[NASA-TH-78253] 25 p0171 N80-15562 ENERGY DISSIPATION	January 9-12, 1979 25 p0047 A80-17126 Exploring alternative energy strategies
A theoretical method for estimation of power loss due to mismatch in solar cell I-V characteristics	25 p0047 A80-17127 Global options for short-range alternative energy
25 p0025 A80-12763 LASL toroidal reversed-field pinch programme	strategies 25 p0048 A80-17129
25 p0054 A80-17809 Energy saving in injection molding [NEL-662] 25 p0136 N80-13318	Global perspectives and options for long-range energy strategies
RWERGY LEVELS Principles of photoelectrochemical solar energy	25 p0048 A80-17130 Waves, currents, tides - Problems and prospects
conversion 25 p0074 A80-18990	25 p0049 A80-17134 Prospects of future geothermal energy development 25 p0049 A80-17138
ENERGY POLICY Models of worldwide energy demand and consumption	The present status of coal gasification following the 14th World Gas Congress Toronto 1979
25 p0002 A80-10228 Some solar energy programmes in the United Nations system	25 p0050 A80-17222 The policy of the European Economic Community in the field of energy savings
25 p0CC6 A80-11342 Soft and hard energy paths - The roads not taken political, technical and philosophical	25 p0050 A80-17223 Screening evaluation of electric power cycles integrated with coal gasification plants
aspects of energy problem 25 p0007 A80-11400	[ASME PAPER 79-WA/ENEE-4] 25 p0071 A80-18644 On the substitution of petroleum by other energy
Annual review of energy. Volume 4 Book 25 p0008 A80-11826 United States energy alternatives to 2010 and	sources - Using the energy economics of West Germany as an example
beyond - The CONAES study 25 p0008 A80-11827	25 p0074 A80-19000 The United Nations' approach to geothermal resource assessment
Frontiers in energy demand modeling 25 p0009 A80-11830 Assessing energy policy models - Current state and	25 p0076 M80-19207 Prospects for the near-term commercialization of shale oil in the United States
future directions 25 p0009 A80-11831 Review of scenarios of future U.S. energy use	Supply and demand in input-output analysis for
25 p0009 A80-11832 Hydrogen - A means of integrating competing	energy modeling  25 p0088 A80-20890 Applications analysis of fixed site hydrogen storage
technology into a unified energy system 25 p0014 A80-11955 The prospect for anthracite as a national energy	[SAND-78-8272] 25 p0092 N80-10384 Research guidance studies to assess gasoline from coal by methanol-to-gasoline and sasol-type
resource 25 p0014 A80-11960	Fischer-Tropsch technologies [FE-2447-13] 25 p0093 N80-10388
The reality of on-site fuel cells 25 p0016 A80-11973	Near term potential of wood as a fuel [BCP/C4101] 25 p0093 N80-10389
Economics/reliability trade-offs in materials for various coal conversion and utilization processes 25 p0016 A80-11975	Sugar crops as a source of fuels. Volume 1: Agricultural research [TID-29400/1] 25 p0093 N80-10395
Geothermal energy markets on the Atlantic coastal plain  25 p0016 A80-11978	Biomass energy enhancement: A report to the President's Council on Environmental Quality
Development of renewable energy sources in the United Kingdom	solar heat gasification [PB-296624/0] 25 p0094 N80-10396 Steam turbines thermoelectric power generation
25 p0C17 A80-11980 Source, supply and nature of municipal and industrial waste as a fuel	[ANL/CES/TE-78-7] 25 p0095 N80-10502 Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10504
Near-term prospects for solar industrial process heat	The first small power system experiment, Phase 1: Engineering experiment no. 1 solar thermal electric power plants
25 p0018 A80-11988  A microeconomic approach to passive solar design - Performance, cost, optimal sizing and comfort analysis	[NASA-CR-162417] 25 p0095 N80-10596 Passive solar energy programs and plans [GP0-36-211] 25 p0095 N80-10599
25 p0021 A80-12433 Determination of the optimal solar investment decision criterion	Occulgee national monument visitor center solar heating and cooling system design review data [NASA-CR-150706] 25 p0096 N80-10601
25 p0021 A80-12437 Programme and progress of DST sponsored sclar photovoltaic work in India	Solar heating and cooling systems design and development [NASA-CR-150618] 25 p0096 N80-10602
25 p0025 A80-12760 Industrial applications of solar energy in India	Economic structure, aggregate production functions and the demand for energy as an intermediate product: A preliminary analysis
25 p0027 A80-12780	[DOE/EIA-0103/8] 25 p0096 N80-10607

SUBJECT INDEX ENERGY POLICY CONTD

Dispersed power systems and total energy	National Gas Survey report to the Federal Energy
[SAND-78-2006C] 25 p0096 N80-10608	Regulatory Commission by the Supply-Technical
Safety and environmental implications DOE/Sandia	Advisory Task Force on nonconventional natural
Midtemperature Solar Systems Test Facility	gas resources
[SAND-78-2292C] 25 p0097 N80-10609	[DOE/FEEC-0010] 25 p0107 N80-11251 Unconventional circuits for static voltage
EPRI new energy resources department strategy paper [EPRI-ER-979] 25 p0097 N80-10610	transformers
Another look at energy conservation	[BMFT-PE-T-78-26] 25 p0107 N80-11368
[LBL-7893] 25 p0097 N80-10611	Tertiary oil recovery processes research at the
Summary report of the Solar Reflective Materials	University of Texas
Technology Workshop	[BETC-0001-1] 25 p0108 N80-11544
[PNL-2763] 25 p0097 N80-10613	MEDEE 2: A model for long term energy demand
National energy plan 2	evaluation
[DOE/TIC-10109] 25 p0097 N80-10618	[IIASA-BR-78-17] 25 p0109 N80-11554
Energy transition in California	Solar commercialization
[UCRL-15003] 25 p0097 N80-10619	[GPO-43-586] 25 p0109 %80-11556
Energy conservation and the environment: conflict or complement	Energy initiatives of the 95th Congress [GPO-42-797] 25 p0109 N80-11557
[LBL-7882] 25 p0098 N80-10621	[GPO-42-797] 25 p0109 N80-11557  Heat pump centered integrated community energy
Solar assisted heat pump overview and summary of	systems: System development
in-house research	[ANL/ICES-TM-27] 25 p0110 N80-11571
[BNL-24911] 25 p0C98 N80-10624	Heat pump centered integrated community energy
Methodology for identifying materials constraints	systems; System development
to implementation of solar energy technologies	[ANL-ICES-TH-28] 25 p0111 N80-11574
[PNL-2711] 25 p0098 N80-10625	Implementing energy conservation strategies in
Survey of solar thermal energy storage subsystems	energy materials transport: U. S. Department of
for thermal/electric applications	Energy and other government agency policy-making
[ORNL/TM-5758] 25 p0098 N80-10627 Comprehensive environment, health, and safety	decisions [ANL/EES-TM-32] 25 p0111 N80-11577
program report, FY 1978	Wind energy systems: Program summary
[DOF/EV-0035] 25 p0098 N80-10630	[DOE/ET-0093] 25 p0111 N80-11578
Soviet energy balances	Geothermal energy for industrial application
[RAND/R-2257-DOE] 25 p0099 N80-10634	[LBL-8919] 25 p0111 N80-11579
Department of Energy workshops on industrial	Concentrating solar collector test results
energy conservation reporting	Collector Module Test Facility (CMTF)
[DOE/CS-1830-T3] 25 p0099 N80-10635	[SAND-78-0977] 25 p0111 N80-11580
Resolving environmental issues in energy	Heat loss reduction techniques for annular solar
development: Roles for the Department of Energy and its field offices	receiver designs [SAND-78-1769] 25 p0111 N80-11581
[RAND/R-2335-DOE] 25 p0099 N80-10636	Design considerations for a proposed passive
Summary of major energy legislation of the 95th	vacuum solar annular receiver
Congress	[SAND-78-0982] 25 p0111 N80-11582
[DOE/TIC-10118] 25 p0100 N80-10644	Regional reference energy systems: Electric
Determination of the technical and economic	utility applications
feasibility of luminescent solar concentrators	[BNL-50962] 25 p0111 N80-11585
[SAND-79-7005] 25 p010C N80-10650	DOE heat pump centered integrated community energy
Analysis of a LiCl open-cycle absorption air	systems project
conditioner which utilizes a packed bed for regeneration of the absorbent solution driven by	[CONF-790362-1] 25 p0112 N80-11586
solar heated air	Department of Energy fossil energy equipment development programs
[COO-4546-1] 25 p0101 N80-10652	[CONF-790405-14] 25 p0112 N80-11590
Preliminary analysis of a total solar heating system	Standby conservation plan no. 2: Emergency
[COO-4546-4] 25 p0101 N80-10653	building temperature restrictions. Économic
Solar generation of industrial steam. Innovative	analysis
research program subtask	[DOE/ERA-0047] 25 p0112 N80-11593
[COO-4546-9] 25 p0101 N80-10656	Residential sector energy forecasts, national
Satellite Power System (SPS) preliminary societal	level for 1978-electricity, natural gas, number
assessment [HCP/B4024-01/14] 25 p0101 N80-10657	two fuel oil and propane [DCE/EIA-0102/50] 25 p0113 N80-11601
Cost-effective control systems for solar heating	Status of information for consumers of small wind
and cooling applications	energy systems
[SAN-1592-1] 25 p0101 N80-10658	[SERI/TF-51-158] 25 p0113 N80-11602
Solar energy system performance evaluation:	Analysis of financial programs for energy
A-Frame Industries, single family dwelling,	conservation: Market simulation (penetration)
Kaneohe, Hawaii	model
[SOLAR/1010-78/14] 25 p0101 N80-10659	[HCP/M8662-1] 25 p0114 N80-11606
Natural gas reserves estimates: A good federal program emerging, but problems and duplications	Energy conservation: Policy issues and end-use scenarios of savings potential. Part 3: Folicy
persist	barriers and investment decisions in industry
[PB-296628/2] 25 p0103 N80-10679	[LBL-7896-PT-3] 25 p0114 N80-11614
Managerial plan: Executive order 12003 and the	Research overview of biological and chemical
National Energy Act	conversion methods and identification of key
[DOE/TIC-10067] 25 p0104 N80-10965	research areas for SERI
Dimensions/NBS, volume 63, no. 6, June 1979	[SERI/TE-33-067] 25 p0115 N80-11617
[PB-297836/9] 25 p0105 N80-10975	International coal technology summary document
Chemical structures and reactivities of coal as an	[DOE/PE-0010] 25 p0115 N80-11621
organic natural product [CONF-790415-25] 25 p0105 N80-11168	Investigation of the applicability of technical systems utilizing solar energy for the heat
Combustion of low grade coal	supply of buildings
[ICIIS/IR-02] 25 p0106 N80-11179	[BMFT-FB-T-78-48] 25 p0116 M80-11630
Economics of gasoline production from underground	Interaction in limited arrays of windmills:
coal gasification via mobil-M process	Review of earlier results from a simple model
[CONF-790405-12] 25 p0106 N80-11246	and a presentation of the capabilities of a
Biofuels: A survey	dynamic PBL model
[EPRI-ER-746-SR] 25 p0 107 N80-11250	[DM-26] 25 p0116 N80-11631
	Solar energy with latent heat storage: Fundamentals and applications
	[ASSA-10/1978] 25 p0116 880-11632

Solar access law. Protecting access to sunlight	Environmental analysis of synthetic liquid fuels
for solar energy systems	shale oil, coal liquefaction, and biomass
[PB-296532/5] 25 p0117 N80-11633 National environmental/energy workforce	production of ethanol
assessment, phase 3. Air programs bibliography	[DOE/EV-0044] 25 p0134 N80-13279 Research and development of rapid hydrogenation
[PB-298580/2] 25 p0117 N80-11670	for coal conversion to synthetic motor fuels
Evaluation of nuclear power plant siting by	(riser cracking of coal)
probabilistic assessment of environmental impact [VTT-EN-24] 25 p0118 N80-11891	[FE-2307-46] 25 p0134 N80-13280
The future role of hydrogen fuel in an electrical	Commercialization strategy report for coal liquefaction
society	[TID-28846] 25 p0135 N80-13285
[UTIAS-241] 25 p0119 N80-12189	Research and development of an advanced process
Characterization and combustion of SRC 2 fuel oil [EPRI-PP-1028] 25 p0119 N80-12192	for conversion of coal to synthetic gasoline and
Environmental aspects of alternative fuels	other distillate motor fuels [FE-1800-33] 25 p0135 N80-13287
utilization for highway vehicles	Underground coal conversion. Program description
[OCHL-81841] 25 p0120 N80-12201 Shale oil: OS and world resources and prospects	[DOE/ET-0100] 25 p0136 N80-13293
for near-term commercialization in the United	Review of supporting research at Cak Ridge National Laboratory for underground coal
States	conversion
[ORAU/IPA-79-8(R)] 25 p0122 N80-12544	[CONF-790630-9] 25 p0136 N80-13295
Foam solar sea power: A physical investigation 25 p0122 N80-12548	Liquid hydrogen as an automotive fuel
Effect of operating temperatures on the cost of	[LA-UR-79-621] 25 p0136 N80-13297 Energy saving in injection molding
energy from solar thermal electric power plants	[NEL-662] 25 p0136 N80+13318
[SAND-79-0801] 25 p0124 N80-12563 Optimization of photovoltaic/thermal collector	Condensation and evaporation heat transfer with
heat pump systems	low-boiling temperature fluids for ocean thermal and geothermal energy conversion
[COO-4577-7] 25 pO124 N80-12566	[CONP-790539-1] 25 p0137 N80-13412
The great adventure: A report on the 10 regional	Geopressure energy resource evaluation Texas
<pre>public hearings on sclar energy for the domestic policy review</pre>	and Louisiana
[HCP/06354-01] 25 p0124 N80-12567	[ORNL/PPA-79/2] 25 p0138 N80-13605 Current U. S. petroleum situation and short-term
Low-temperature thermal energy storage program	supply/demand outlook
annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568	[DOE/EIA-0184/5] 25 p0138 N80-13607
[ORNL/TM-6605] 25 p0125 N80-12568  Puel choice and aggregate energy demand in the	World Energy Data System (WENDS). Volume 7:
commercial sector electricity, natural gas,	Nuclear facility profiles, AG-CH [ANL-PHS-79-2-VOL-7] 25 p0139 N80-13629
and fuel oil	Low-temperature thermal energy storage program
[ORNL/CCN-27] 25 p0 126 N80-12580 Standby conservation plan no. 2: Emergency	annual operating plan
building temperature restrictions. Authorities:	[ORNL/TM-6934] 25 p0139 N80-13631 Survey of the research into energy-economy
Need, rationale, operation	interactions. Volume 1: Survey
[DOE/ERA-0048] 25 p0126 N80-12582	[HCF/I6346-01/1-VOL-1] 25 p0139 N80-13633
United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 880-12583	Energy policy and decision analysis; new concepts
October 1978 environmental data for sites in the	and mechanisms [LA-7909-MS] 25 p0140 B80-13634
National Solar Data Network	Systems engineering for power, program report
[SOLAR/0010-78-10] 25 p0126 N80-12585 Residential on site solar heating systems. A	[DOE/ET-0012/2-REV] 25 p0140 N80-13637
project evaluation using the capital asset	Energy system in the Far West: Impacts of the National Energy Act of 1978
pricing model	[UCRL-52754] 25 p0140 N80-13638
[LBL-8298] 25 p0126 N80-12588	Solar thermal test facility heliostat development
Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589	[SAND-78-1177] 25 p0140 N80-13642
Constraints on energy conservation	National energy policy and state coastal programs: A critique of current efforts to balance
[ORAU/IEA-78-17 (M)] 25 p0127 N80-12594	environmental protection and energy production
Fundamental aspects of energy conservation policy [ORAU/IEA-78-20(M)] 25 p0127 N80-12595	along the coast
Regional economic/demographic projections for	[SAN-0034/263-1] 25 p0141 N80-13643 Linear concentration solar collector in an air
energy policy analysis	supported enclosure. Preliminary design study
[ORNL/TM-6668] 25 p0128 N80-12599 Solar Heating And Cooling Of Buildings (SHACOB)	LSAND-78-7022] 25 p0141 N80-13644
Commercialization report. Part B: Analysis of	Performance testing of the General Electric
market development, volume 2	Engineering Prototype Collector [SAND-79-0514] 25 p0141 N80-13645
[DOE/TIC-10071] 25 p0128 N80-12603	Characterization of solid-waste conversion and
Effects of energy policy on industry [USFFE-1978-8] 25 p0129 N80-12604	cogeneration systems
Process design of the LASL bismuth sulfate	[LBL-7883] 25 p0141 M80-13648 Review of the environment effects and benefits of
thermochemical hydrogen cycle	selected solar energy technologies
[LA-UR-79-1256] 25 p0129 N80-12605 Energy conservation technology education program	[SERI/TP-53-114R] 25 p0 141 N80-13649
[HCP/M2165] 25 p0129 N80-12606	Process optimization of industrial energy use [BNL-26482] 25 p0141 N80-13650
Research and development of a heat and pump water	[BNL-26482] 25 p0141 N80-13650 Case study of the Brownell low energy requirement
heater, volume 1	nouse
[ORNL/SUB-7321-1] 25 p0130 N80-12613 National Energy Act of 1978: A regional assessment	[BNL-50968] 25 p0142 N80-13651
[PB-296479/9] 25 p0130 N80-12615	Design, construction, and operation of the solar assisted heat pump ground coupled storage
Environmental aspects of alternative energy	experiments at Brookhaven National Laboratory
technologies for California [UCRL-15002] 25 p0131 N80-12628	[BNL-459U8] 25 p0.142 NRO-13654
[UCRL-15002] 25 p0131 N80-12628 Energy and climate: A review with emphasis on	OTEC platform configuration and integration. Volume 1: Systems engineering and integration
global interactions	[TID=29418] 25 p0142 NRO=13655
25 p0131 N80-12677 National energy act of 1978: Far western	OTEC thermal response report for Pacific plant
perspective. A study for the US Department of	ship, 5 to 10 deg N 90 to 95 deg W
Fnergy, Federal Region 9	[HCP/T2898-01/3] 25 p0142 N80-13656 Solar thermal rower systems
[UCID-17944-REV-1] 25 p0132 N80-12955	[DOE/ET-0078/T1] 25 p0143 N80-13662

Solar thermal electric plants in hydroelectric grid	Microbial deterioration of hydrocarbon fuels from
Lower Colorado region [DOE/SP/10505-1] 25 p0143 N80-13663	oil shale, coal, and petroleum. 1: Exploratory experiments
Pundamental economic issues in the development of	[AD-A073761] 25 p0150 H80-14259
small-scale hydro	High-BTO coal gasification processes
[DOE/RA-23-216.00.0-02] 25 p0143 H80-13667 Solar cooling performance in CSU Solar House 3	[ANL/CES/TE-79-2] 25 p0150 N80-14263 Proceedings of the 1978 Coal Chemistry Workshop
[COO-2858-23] 25 p0143 N80-13668	[CONF-780372] 25 p0150 N80-14264
Experimental and theoretical evaluation of a novel	The solar in Pederal buildings demonstration program
concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671	[PB-298535/6] 25 p0151 N80-14279 Energy from the West: Energy resource development
Trans-seasonal storage of solar energy:	systems report. Volume 1: Introduction and
Innovative research program subtask underground storage	general social controls [FE-299177/6] 25 p0152 N80-14463
[COO-4546-3] 25 p0144 N80-13672	Energy from the West: Energy resource development
Hot dry rock geothermal energy development program	systems report. Volume 2: Coal
[LA-7807-HDR] 25 p0144 N80-13673 Low cost solar cells based on amorphous silicon	[PB-299178/4] 25 p0152 M80-14464 Energy from the West: Energy resource development
electrodeposited from organic solvents	systems report. Volume 3: Oil shale
[SAN-0113-T3] 25 p0145 N80-13678 Possil energy program. 1. Mining research and	[PB-299179/2] 25 p0152 N80-14465 Energy from the West: Energy resource development
development: Coal preparation and analysis	systems report. Volume 4: Uranium
[IS-4655] 25 p0145 N80-13679	[PB-299180/0] 25 p0152 N80-14466
Thermal performance of buildings and building envelope systems: An annotated bibliography	Energy from the West: Energy resource development systems report. Volume 5: Oil and natural gas
[LBL-8925] 25 p0145 N80-13680	[PB-299181/8] 25 p0152 N80-14467
Cogeneration opportunities conferences	Energy from the West: Energy resource development
[CONF-7806118] 25 p0145 N80-13681 Cost analysis of packed beds for thermal energy	systems report. Volume 6: Geothermal [FB-299182/6] 25 p0152 N80-14468
storage	Residential photovoltaic module and array
[CAES-11] 25 p0145 N80-13687	requirements study, appendices [NASA-CR-162529] 25 p0154 N80-14481
Status of development, energy and economics aspects of alternative technologies energy	[NASA-CR-162529] 25 p0154 N80-14481 Residential photovoltaic module and array
policy and technology with respect to coal	requirements study
utilization [CONF-790371-1] 25 p0145 N80-13689	[NASA-CR-162528] 25 p0154 N80-14482 A conceptual design study on the application of
Sandia Laboratories operational experience with	liquid metal heat transfer technology to the
small heat engines in solar thermal power systems	solar thermal power plant
[SAND-78-2163C] 25 p0146 N80-13693 OTEC power systems	[NASA-CR-162544] 25 p0154 B80-14484 Application of field-modulated generator systems
[CONF-790444-2] 25 p0146 N80-13696	to dispersed solar thermal electric generation
Silicon concentrator solar cell manufacturing development	[NASA-CR-162536] 25 p0155 N80-14488 Results of thermal performance evaluation of the
[SAND-79-7021] 25 p0146 N80-13697	Owens-Illinois sunpack liquid solar collector at
Review of solar energy	indoor conditions
[SERI/TR-54-066] 25 p0146 N80-13699 Solar central receiver prototype heliostat CDRL	[NASA-CR-161189] 25 p0156 N80-14500 Outlook for nuclear fission energy
Solar central receiver prototype heliostat CDRL item B.D., volume 1	[NASA-CR-161189] 25 p0156 N80-14500 Outlook for nuclear fission energy [CONF-7811126-1] 25 p0157 N80-14509
Solar central receiver prototype heliostat CDBL item B.D., volume 1 [SAN-1605/7-VOL-1] 25 p0146 N80-13700	Outlook for nuclear fission energy [CONF-7811126-1] 25 p0157 N80-14509 Simulation approach for base-line energy-siting
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAN-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Hining research and	Outlook for nuclear fission energy [CONF-7811126-1] 25 p0157 N80-14509 Simulation approach for base-line energy-siting analysis
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAN-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702	Outlook for nuclear fission energy [CONF-7811126-1] 25 p0157 N80-14509 Simulation approach for base-line energy-siting analysis [CONF-790459-22] 25 p0157 N80-14511 Highlights of the energy technology programs
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A	Outlook for nuclear fission energy [CONF-7811126-1] 25 p0157 N80-14509 Simulation approach for base-line energy-siting analysis [CONF-790459-22] 25 p0157 N80-14511 Highlights of the energy technology programs [BNL-50959] 25 p0157 N80-14512
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703	Outlook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis [CONF-790459-22] 25 p0157 N80-14511 Highlights of the energy technology programs [BNL-50959] Dynamic energy system optimization model study of computerized simulation domestic energy models
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPRI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems	Outlook for nuclear fission energy  [CONF-7811126-1] 25 p0157 N80-14509 Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 25 p0157 N80-14511 Highlights of the energy technology programs  [BNL-50959] 25 p0157 N80-14512 Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-EA-1079] 25 p0157 N80-14514
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703	Outlook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis [CONF-790459-22] 25 p0157 N80-14511 Highlights of the energy technology programs [BNL-50959] Dynamic energy system optimization model study of computerized simulation domestic energy models
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPRI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707	Outlook for nuclear fission energy  [CONF-7811126-1] 25 p0157 N80-14509 Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 25 p0157 N80-14511 Highlights of the energy technology programs  [BNL-50959] 25 p0157 N80-14512 Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-EA-1079] 25 p0157 N80-14514 Report to the Congress on the coordination of Pederal energy conservation programs involving state and local governments
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAN-1605/7-70L-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPRI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems	Outlook for nuclear fission energy  [CONF-7811126-1] 25 p0157 N80-14509 Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 25 p0157 N80-14511 Highlights of the energy technology programs  [BNL-50959] 25 p0157 N80-14512 Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-EN-1079] 25 p0157 N80-14514 Report to the Congress on the coordination of Federal energy conservation programs involving state and local governments  [DOE/TIC-10127] 25 p0157 N80-14515
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Penergy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration,	Outlook for nuclear fission energy  [CONF-7811126-1] 25 p0157 N80-14509 Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 25 p0157 N80-14511 Highlights of the energy technology programs  [BNL-50959] 25 p0157 N80-14512 Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-EA-1079] 25 p0157 N80-14514 Report to the Congress on the coordination of Pederal energy conservation programs involving state and local governments
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAN-1605/7-90L-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPRI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary	Outlook for nuclear fission energy [CONF-7811126-1] 25 p0157 N80-14509 Simulation approach for base-line energy-siting analysis [CONF-790459-22] 25 p0157 N80-14511 Highlights of the energy technology programs [BNL-50959] 25 p0157 N80-14512 Dynamic energy system optimization model study of computerized simulation domestic energy models [EPRI-EA-1079] 25 p0157 N80-14514 Report to the Congress on the coordination of Pederal energy conservation programs involving state and local governments [DOE/TIC-10127] 25 p0157 N80-14515 New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Penergy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration,	Outlook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 125 p0157 N80-14511 Highlights of the energy technology programs  [BNL-50959] Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-EA-1079] Report to the Congress on the coordination of rederal energy conservation programs involving state and local governments  [DOE/TIC-10127] New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors  [COO-4628-4-PT-1] 25 p0158 N80-14516
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPRI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [COMF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [COMF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2	Outlook for nuclear fission energy  [CONF-7811126-1] 25 p0157 N80-14509  Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 25 p0157 N80-14511  Highlights of the energy technology programs  [BNL-50959] 25 p0157 N80-14512  Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-EN-1079] 25 p0157 N80-14514  Report to the Congress on the coordination of Pederal energy conservation programs involving state and local governments  [DOE/TIC-10127] 25 p0157 N80-14515  New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors  [COC-4628-4-PT-1] 25 p0158 N80-14516  Application of diffusion research to solar energy policy issues
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Hining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [CO0-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-AFP] 25 p0147 N80-13713	Outlook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 25 p0157 N80-14511 Highlights of the energy technology programs  [BNL-50959] Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-RA-1079] Report to the Congress on the coordination of Federal energy conservation programs involving state and local governments  [DOE/TIC-10127] New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors  [COO-4628-4-PT-1] Application of diffusion research to solar energy policy issues  [SERI/TR-51-194] 25 p0158 N80-14518
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPRI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [COMF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [COMF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-AFP] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan	Outlook for nuclear fission energy  [CONF-7811126-1] 25 p0157 N80-14509  Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 25 p0157 N80-14511  Highlights of the energy technology programs  [BNL-50959] 25 p0157 N80-14512  Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-EA-1079] 25 p0157 N80-14514  Report to the Congress on the coordination of Pederal energy conservation programs involving state and local governments  [DOE/TIC-10127] 25 p0157 N80-14515  New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors  [COO-4628-4-PT-1] 25 p0158 N80-14516  Application of diffusion research to solar energy policy issues  [SERI/TR-51-194] 25 p0158 N80-14518  Implementation of state solar incentives: Land-use planning to ensure solar access
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Hining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A sumary [EPBI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [CO0-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-AFP] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714	Outlook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 125 p0157 N80-14511 Highlights of the energy technology programs  [BNL-50959] Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-RA-1079] Report to the Congress on the coordination of rederal energy conservation programs involving state and local governments  [DOE/TIC-10127] New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors  [COO-4628-4-PT-1] Application of diffusion research to solar energy policy issues  [SERI/TR-51-194] Implementation of state solar incentives: Land-use planning to ensure solar access  [SERI/TR-51-163] 25 p0158 N80-14519
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700  Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702  Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703  Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706  Energy conservation via heat transfer enhancement [CO0-4649-4] 25 p0147 N80-13707  Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708  OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-APP] 25 p0147 N80-13713  OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714  Critique of the meteorological and air quality	Outlook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis [CONF-790459-22] Highlights of the energy technology programs [BNL-50959] 25 p0157 N80-14512 Dynamic energy system optimization model study of computerized simulation domestic energy models [EPRI-EA-1079] Report to the Congress on the coordination of Pederal energy conservation programs involving state and local governments [DOE/TIC-10127] New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors [COO-4628-4-PT-1] Application of diffusion research to solar energy policy issues [SERI/TR-51-194] Implementation of state solar incentives: Land-use planning to ensure solar access [SERI/TR-51-163] Implementation of state solar incentives: A
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Hining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-AFP] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714 Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Fart A: Comments on the	Couldook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 125 p0157 N80-14511 Highlights of the energy technology programs  [BNL-50959] 25 p0157 N80-14512 Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-RA-1079] 25 p0157 N80-14514 Report to the Congress on the coordination of rederal energy conservation programs involving state and local governments  [DOE/TIC-10127] New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors  [COO-4628-4-PT-1] Application of diffusion research to solar energy policy issues  [SERI/TR-51-194] Implementation of state solar incentives: Land-use planning to ensure solar access  [SERI/TR-51-163] Implementation of state solar incentives: A preliminary assessment  [SERI/TR-51-159] 25 p0158 N80-14519
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [COMP-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [COMP-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-APP] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714 Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for	Outlook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis [CONF-790459-22] [CONF-790459-20] [CONF-790459-20] [CONF-790459-20] [CONF-790459-20 [CONF-790459-20] [CONF-790459-20 [CONF-790459-20 [CONF-790459 [CONF-7904
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Hining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-AFP] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714 Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Fart A: Comments on the	Couldook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 125 p0157 N80-14511 Highlights of the energy technology programs  [BNL-50959] 25 p0157 N80-14512 Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-RA-1079] 25 p0157 N80-14514 Report to the Congress on the coordination of rederal energy conservation programs involving state and local governments  [DOE/TIC-10127] New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors  [COO-4628-4-PT-1] Application of diffusion research to solar energy policy issues  [SERI/TR-51-194] Implementation of state solar incentives: Land-use planning to ensure solar access  [SERI/TR-51-163] Implementation of state solar incentives: A preliminary assessment  [SERI/TR-51-159] 25 p0158 N80-14519
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPRI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [COMP-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [COMP-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-APP] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714 Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723	Outlook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis [CONF-790459-22] Highlights of the energy technology programs [BNL-50959] 25 p0157 N80-14512 Dynamic energy system optimization model study of computerized simulation domestic energy models [EPRI-EA-1079] Report to the Congress on the coordination of Pederal energy conservation programs involving state and local governments [DOE/TIC-10127] New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors [COO-4628-4-PT-1] Application of diffusion research to solar energy policy issues [SERI/TR-51-194] Implementation of state solar incentives: Land-use planning to ensure solar access [SERI/TR-51-163] Implementation of state solar incentives: A preliminary assessment [SERI/TB-51-159] ENERGY CONSERVATION OF SERI/TB-51-159] ENERGY CONSERVATION OF SERI/TB-51-159 ENERGY CONSERVATION OF SERI/TB-51-159 ENERGY CONSERVATION OF SERI/TB-51-14519 ENERGY CONSERVATION OF S
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPRI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DDE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DDE/ET-4065/1-VOL-2-APF] 25 p0147 N80-13713 OTEC platform configuration and integation. Volume 3: Project plan [DDE/ET-4065/1-VOL-3] 25 p0148 N80-13714 Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DDE/EV-70031/4-PT-A/B] 25 p0148 N80-13723 The analysis of sediment samples for hydrocarbons	Coutlook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis  [CONF-790459-22] Highlights of the energy technology programs  [BNL-50959] 25 p0157 N80-14512 Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-EA-1079] Report to the Congress on the coordination of Pederal energy conservation programs involving state and local governments  [DOE/TIC-10127] 25 p0157 N80-14515  New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors  [COO-4628-4-PT-1] Application of diffusion research to solar energy policy issues  [SERI/TR-51-194] Implementation of state solar incentives: Land-use planning to ensure solar access  [SIRI/TR-51-163] 25 p0158 N80-14519 Implementation of state solar incentives: A preliminary assessment  [SERI/TB-51-159] Energy conservation in the US economy from increased recycle of obsolete steel scrap [COO-2893-10] Definition and analysis of the barriers to the implementation of urban energy recovery systems
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPRI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [COMP-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [COMP-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714 Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723 The analysis of sediment samples for hydrocarbons [AD-A073822] Newton's method for generalized equations and the	Outlook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis [CONF-790459-22] Highlights of the energy technology programs [BNL-50959] 25 p0157 N80-14512 Dynamic energy system optimization model study of computerized simulation domestic energy models [EPRI-EA-1079] Report to the Congress on the coordination of Federal energy conservation programs involving state and local governments [DOE/TIC-10127] New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors [COO-4628-4-PT-1] Application of diffusion research to solar energy policy issues [SERI/TR-51-194] Implementation of state solar incentives: Land-use planning to ensure solar access [SFRI/TR-51-163] Implementation of state solar incentives: A preliminary assessment [SERI/TR-51-159] Energy conservation in the US economy from increased recycle of obsolete steel scrap [COO-2893-10] Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSV/TM-2] Non-tracking inflated cylindrical solar concentrator
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [CO0-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-APP] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714 Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PI-A/B] 25 p0148 N80-13723 The analysis of sediment samples for hydrocarbons [AD-A073622] 25 p0149 N80-13754 Newton's method for generalized equations and the FIES energy model	Outlook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 25 p0157 N80-14511 Highlights of the energy technology programs  [BNL-50959] Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-EA-1079] 25 p0157 N80-14514 Report to the Congress on the coordination of Pederal energy conservation programs involving state and local governments  [DOE/TIC-10127] 25 p0157 N80-14515 New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors  [COO-4628-4-PT-1] 25 p0158 N80-14516 Application of diffusion research to solar energy policy issues  [SERI/TR-51-194] Implementation of state solar incentives: Land-use planning to ensure solar access  [SERI/TR-51-163] Implementation of state solar incentives: A preliminary assessment  [SERI/TR-51-159] Energy conservation in the US economy from increased recycle of obsolete steel scrap  [COO-2893-10] Definition and analysis of the barriers to the implementation of urban energy recovery systems  [ANL/CNSV/TN-2] SON-tracking inflated cylindrical solar concentrator  [UCRL-82721] 25 p0159 N80-14528
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Hining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A sumary [EPBI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-AFP] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714 Critique of the meteorological and air guality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/ET-70031/4-PT-A/B] 25 p0148 N80-13723 The analysis of sediment samples for hydrocarbons [AD-A073822] 25 p0149 N80-13754 Newton's method for generalized equations and the PIES energy model 25 p0149 N80-13872	CONTOWER OF THE PROPERTY OF THE PROPERTY OF SIMULATION APPROACH FOR THE PROPERTY OF THE PROPETTY OF THE PROPET
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-APP] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714 Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723 The analysis of sediment samples for hydrocarbons [AD-A073822] 25 p0149 N80-13754 Newton's method for generalized equations and the PIES energy model 25 p0149 N80-13872 US program for the immobilization of high-level nuclear wastes	Outlook for nuclear fission energy  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis  [CONF-790459-22] 25 p0157 N80-14511 Highlights of the energy technology programs  [BNL-50959] Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-EA-1079] 25 p0157 N80-14514 Report to the Congress on the coordination of Federal energy conservation programs involving state and local governments  [DOE/TIC-10127] 10 p0157 N80-14515 New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors  [COO-4628-4-PT-1] Application of diffusion research to solar energy policy issues  [SERI/TR-51-194] 25 p0158 N80-14518 Implementation of state solar incentives: Land-use planning to ensure solar access  [SERI/TR-51-163] 25 p0158 N80-14519 Implementation of state solar incentives: A preliminary assessment  [SERI/TR-51-159] 25 p0158 N80-14520 Energy conservation in the US economy from increased recycle of obsolete steel scrap  [COO-2893-10] 25 p0159 N80-14524 Definition and analysis of the barriers to the implementation of urban energy recovery systems  [ANL/CNSV/TR-2] Non-tracking inflated cylindrical solar concentrator  [UCRL-82721] 25 p0159 N80-14528 Commercial solar augmented heat pump system  [EPBI-ER-1004] Construction and initial operation of the
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Hining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-AFP] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714 Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/ET-70031/4-PT-A/B] 25 p0148 N80-13723 The analysis of sediment samples for hydrocarbons [AD-N073822] Newton's method for generalized equations and the PIES energy model 25 p0149 N80-13754 Newton's method for generalized equations and the PIES energy model 25 p0149 N80-13750 P0149 N80-13872 P0149 N80-13872	CONTOWER OF THE PROPERTY OF TH
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPBI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-APP] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714 Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723 The analysis of sediment samples for hydrocarbons [AD-A073822] 25 p0149 N80-13754 Newton's method for generalized equations and the PIES energy model 25 p0149 N80-13872 US program for the immobilization of high-level nuclear wastes	CONTOUR FOR THE PROPERTY OF THE PROPERTY OF SIMULATION APPROACH FOR DATE OF THE PROPERTY OF TH
Solar central receiver prototype heliostat CDRL item B.D., volume 1 [SAM-1605/7-VOL-1] 25 p0146 N80-13700 Possil energy program, 1. Hining research and development: Coal preparation and analysis (IS-4703) 25 p0147 N80-13702 Solar heating and cooling research projects: A summary [EPRI-ER-1095-SR] 25 p0147 N80-13703 Community heating and cooling systems [COMP-790446-6] 25 p0147 N80-13706 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13707 Industrial applications of advanced energy systems [COMF-790602-54] 25 p0147 N80-13708 OTEC platform configuration and integration, executive summary [DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-APP] 25 p0147 N80-13713 OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714 Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PI-A/B] 25 p0148 N80-13723 The analysis of sediment samples for hydrocarbons [AD-A073822] Newton's method for generalized equations and the FIES energy model 25 p0149 N80-13754 Newton's method for generalized equations and the FIES energy model 25 p0149 N80-13872 Us program for the immobilization of high-level nuclear wastes [DP-MS-79-2] 25 p0149 N80-13917 Pusion power program	CONTRONS TO NUCLEAR FISSION ENERGY  [CONF-7811126-1] Simulation approach for base-line energy-siting analysis  [CONF-790459-22] Highlights of the energy technology programs  [BNL-50959] 25 p0157 N80-14512 Dynamic energy system optimization model study of computerized simulation domestic energy models  [EPRI-EA-1079] Report to the Congress on the coordination of Federal energy conservation programs involving state and local governments  [DOE/TIC-10127] New hybrid 1971 energy intensities, part 1 computation of domestic energy consumption versus economic factors  [COO-4628-4-PT-1] Application of diffusion research to solar energy policy issues  [SERI/TR-51-194] Simplementation of state solar incentives: Land-use planning to ensure solar access  [SFRI/TR-51-163] Implementation of state solar incentives: A preliminary assessment  [SERI/TR-51-159] Energy conservation in the US economy from increased recycle of obsolete steel scrap  [COO-2893-10] Definition and analysis of the barriers to the implementation of urban energy recovery systems  [NUCNEY/TR-2] Non-tracking inflated cylindrical solar concentrator  [UCRL-82721] Commercial solar augmented heat pump system  [EPRI-ER-1004] Construction and initial operation of the Miamisburg salt-gradient solar pond  [MLM-2626-007] E5 p0161 N80-14541

Fifth Ocean Thermal Energy Conversion Conference,	Wharton annual energy model: Development and
volume 2, sections 4-5	simulation results
[CONF-780236-P2] 25 p0162 N80-14553	[EFRI-EA-1115] 25 p0175 N80-15606
Systems Studies for Central Solar Thermal Electric	Performance of residential solar heating and
[CONF-780383] 25 p0162 N80-14558	cooling system with flat-plate and evacuated
Electric utility solar energy activities, 1978	tubular collectors: CSU Solar House 1
[PPRI-ER-966-SR] 25 p0162 N80-14560	[COO-2577-17] 25 p0176 N80-15616
Photovoltaic incentives options	Characterization of operating conditions for
[HCP/CS-0023] 25 p0162 N80-14561	gas/water heat recovery steam generators
Overview of the Department of Energy's research,	
development and demonstration program for the	[CRNL/TM-6622] 25 p0176 N80-15620
	Environmental development plan ocean thermal
recovery of energy and materials from urban waste	energy conversion
[CONF-790373-1] 25 p0163 N80-14562	[DCE/EDP-0034] 25 p0176 N80-15621
Energy Policy and Conservation Act (Public Law	Economic impacts of energy conservation and
94-163) as amended by the National Energy	renewable energy sources
Conservation Policy Act (Public Law 95-619).	[UCRL-15087] 25 p0177 N80-15633
Title 10: Energy. Chapter 2: Department of	Role of the government in the development of solar
Energy. Subchapter D: Fnergy Conservation.	energy
Part 430: Energy conservation program for	[SERI/TP-52-138] 25 p0178 N80-15639
consumer products	Pederal leasing and outer continental shelf energy
[DOE/CS-0056] 25 p0163 N80-14567	production goals
Performance of residential solar heating and	[DCE/RA-0037] 25 p0178 N80-15640
cooling system with flat-plate and evacuated	Pission energy program of the U.S. Department of
tubular collectors: CSU solar house 1	Energy, FY 1980
[COO-2577-16] 25 p0 163 N80-14568	
Realistic sizing of residential solar heating and	
cooling systems	Pusion: A possible option for solving long-term
	energy problems
[COO-2858-14] 25 p0 163 N80-14569	[PB-300692/1] 25 p0181 N80-15946
Evaluation of fuel resources and requirements for	Report to Congress on the economic impact of
the magnetic fusion energy program	energy actions as required by public law 93-275,
[MLM-2419] 25 p0164 N80-14570	section 18-d
Proceedings of the DOE chemical/hydrogen energy	[DOE/PF-0007] 25 p0181 N80-15993
contractor review systems	ENERGY REQUIREMENTS
[CONF-771131] 25 p0164 N80-14572	Models of worldwide energy demand and consumption
Commercializing solar heating: A national	25 p0002 A80-10228
strategy needed	Power supply requirements for a tokamak fusion
[PB-297882/3] 25 p0164 N80-14575	reactor
Insolation models, data and algorithms	25 p0003 A80-10474
[SERI/TR-36-110] 25 p0165 N80-14617	Frontiers in energy demand modeling
Assessment of the applicability of the national	25 p0009 A80-11830
fire weather data library to wind energy analyses	Economics/reliability trade-offs in materials for
[PNL-2538] 25 p0165 N80-14655	warious coal conversion and utilization processes
Distribution and classification of local	various coal conversion and utilization processes
	25 p0016 A80-11975
socio-economic impacts from energy development	Industrial solar total energy systems
[CONF-790481-1] 25 p0166 N80-14954	25 p0017 A80-11987
Mission analysis for the Federal fuels from	The role of coal in the world energy picture up to
biomass program. Volume 3: Feedstock	the year 2000 - Reserves, resources, and
availability	availability from the Western European viewpoint
[SAN-0115-II] 25 p0168 N80-15276	25 p0040 A80-15625
Production of sugarcane and tropical grasses as a	Seminar on Hydrogen as an Energy Vector: Its
renewable energy source	Production, Use and Transportation, 1st,
[DOE/CS/5912-T1] 25 p0168 N80-15277	Brussels, Belgium, October 3, 4, 1978, Proceedings
Report of the Alcohol Fuel Policy Review	25 p0041 A80-15976
[DOE/PE-0012] 25 p0169 N80-15290	Prospects - A social context for natural science
Economic analysis of small scale bioconversion	global energy resource review
units in New Mexico .	
units in New Mexico [PB-301390/1] 25 p0169 N80-15298	25 p0044 A80-16651
[PB-301390/1] 25 p0169 N80-15298	25 p0044 A80-16651 The policy of the European Economic Community in
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings 25 p0050 A80-17223
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565 Design of photovoltaic systems for residential	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings 25 p0050 A80-17223 Net energy analysis of alcohol production from
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565 Design of photovoltaic systems for residential applications in the United States	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings 25 p0050 A80-17223 Net energy analysis of alcohol production from sugarcane
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565 Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C] 25 p0171 N80-15566	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings 25 p0050 A80-17223 Net energy analysis of alcohol production from sugarcane 25 p0062 A80-18165
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565 Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C] 25 p0171 N80-15566 Methodology for determining the configuration of	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings 25 p0050 A80-17223 Net energy analysis of alcohol production from sugarcane 25 p0062 A80-18165 Economic comparisons of solar and fossil total
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565 Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C] 25 p0171 N80-15566 Methodology for determining the configuration of the optimum solar total energy system	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings 25 p0050 A80-17223 Net energy analysis of alcohol production from sugarcane 25 p0062 A80-18165 Economic comparisons of solar and fossil total energy systems for industrial applications
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565 Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C] 25 p0171 N80-15566 Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223 Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165 Economic comparisons of solar and fossil total energy systems for industrial applications [ASHE PAPER 79-WA/TS-6] 25 p0065 A80-18552
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565 Design of photovoltaic systems for residential applications in the United States [SAND-78-2186c] 25 p0171 N80-15566 Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574 Research and evaluation of biomass	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings 25 p0050 A80-17223 Net energy analysis of alcohol production from sugarcane 25 p0062 A80-18165 Economic comparisons of solar and fossil total energy systems for industrial applications [ASHE PAPER 79-WA/TS-6] 25 p0065 A80-18552 A simplified procedure for performance of solar
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565 Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C] 25 p0171 N80-15566 Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574 Research and evaluation of biomass resources/conversion/utilization systems	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223 Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165 Economic comparisons of solar and fossil total energy systems for industrial applications [ASME PAPER 79-WA/TS-6] 25 p0065 A80-18552 A simplified procedure for performance of solar systems with heat pumps
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565 Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C] 25 p0171 N80-15566 Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574 Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications  [ASHE PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps  [ASME PAPER 79-WA/SOL-23] 25 p0065 A80-18555
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565 Design of photovoltaic systems for residential applications in the United States [SAND-78-2186c] 25 p0171 N80-15566 Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574 Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model)	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications  [ASME PAPER 79-WA/TS-6]  25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps  [ASME PAPER 79-WA/SOL-23]  25 p0065 A80-18555  Energy transition in California
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565 Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C] 25 p0171 N80-15566 Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574 Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model) [C00-5022-5] 25 p0172 N80-15576	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223 Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165 Economic comparisons of solar and fossil total energy systems for industrial applications [ASME PAPER 79-WA/TS-6] 25 p0065 A80-18552 A simplified procedure for performance of solar systems with heat pumps [ASME PAPER 79-WA/SOL-23] 25 p0065 A80-18555 Energy transition in California [UCRL-15003] 25 p0097 N80-10619
[PB-301390/1] 25 p0169 N80-15298  Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565  Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C] 25 p0171 N80-15566  Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574  Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model) [COO-5022-5] 25 p0172 N80-15576  Status of the US Department of Energy photovoltaic	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications  [ASHE PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps  [ASHE PAPER 79-WA/SOL-23] 25 p0065 A80-18555  Energy transition in California  [UCHL-15003] 25 p0097 N80-10619  Soviet energy balances
[PB-301390/1] 25 p0169 N80-15298  Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565  Design of photovoltaic systems for residential applications in the United States [SAND-78-2186c] 25 p0171 N80-15566  Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574  Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model) [COO-5022-5] 25 p0172 N80-15576  Status of the US Department of Energy photovoltaic concentrator development project	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223 Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165 Economic comparisons of solar and fossil total energy systems for industrial applications [ASME PAPER 79-WA/TS-6] 25 p0065 A80-18552 A simplified procedure for performance of solar systems with heat pumps [ASME PAPER 79-WA/SOL-23] 25 p0065 A80-18555 Energy transition in California [UCRL-15003] 25 p0097 N80-10619
[PB-301390/1] 25 p0169 N80-15298 Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565 Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C] 25 p0171 N80-15566 Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574 Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model) [C00-5022-5] 25 p0172 N80-15576 Status of the US Department of Energy photovoltaic concentrator development project [SAND-78-2187C] 25 p0172 N80-15578	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications [ASME PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps [ASME PAPER 79-WA/SOL-23] 25 p0065 A80-18555  Energy transition in California [UCRL-15003] 25 p0067 N80-10619  Soviet energy balances [RAND/R-2257-DOE] 25 p0099 N80-10634
[PB-301390/1] 25 p0169 N80-15298  Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565  Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C] 25 p0171 N80-15566  Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574  Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model) [COO-5022-5] 25 p0172 N80-15576  Status of the US Department of Energy photovoltaic concentrator development project [SAND-78-2187C]  Beat pump centered integrated community energy	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications  [ASHE PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps  [ASHE PAPER 79-WA/SOL-23] 25 p0065 A80-18555  Energy transition in California  [UCRL-15003] 25 p0097 N80-10619  Soviet energy balances
[PB-301390/1] 25 p0 169 N80-15298  Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0 171 N80-15565  Design of photovoltaic systems for residential applications in the United States [SAND-78-2187C] 25 p0 171 N80-15566  Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0 172 N80-15574  Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model) [COO-5022-5] 25 p0 172 N80-15576  Status of the US Department of Energy photovoltaic concentrator development project [SAND-78-2187C] 25 p0 172 N80-15578  Heat pump centered integrated community energy systems: Systems development	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223 Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165 Economic comparisons of solar and fossil total energy systems for industrial applications [ASME PAPER 79-WA/TS-6] 25 p0065 A80-18552 A simplified procedure for performance of solar systems with heat pumps [ASME PAPER 79-WA/SOL-23] 25 p0065 A80-18555 Energy transition in California [UCHL-15003] 25 p0097 N80-10619 Soviet energy balances [RAND/R-2257-D0E] 25 p0099 N80-10634 Power supply requirements for a tokamak fusion reactor [ANL/FPF/TM-119] 25 p0104 N80-10918
[PB-301390/1] 25 p0169 N80-15298  Decentralized solar photovoltaic energy systems  [LA-7866-TASE] 25 p0171 N80-15565  Design of photovoltaic systems for residential applications in the United States  [SAND-78-2186C] 25 p0171 N80-15566  Methodology for determining the configuration of the optimum solar total energy system  [SAND-79-0422] 25 p0172 N80-15574  Research and evaluation of biomass resources/conversion/utilization systems  (market/experimental analysis for development of a data base for a fuels from biomass model)  [C00-5022-5] 25 p0172 N80-15576  Status of the US Department of Energy photovoltaic concentrator development project  [SAND-78-2187C] 25 p0172 N80-15578  Heat pump centered integrated community energy systems: Systems development  [ANL/ICES-TM-30] 25 p0173 N80-15588	25 p0044 A80-16651 The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223 Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165 Economic comparisons of solar and fossil total energy systems for industrial applications [ASME PAPER 79-WA/TS-6] 25 p0065 A80-18552 A simplified procedure for performance of solar systems with heat pumps [ASME PAPER 79-WA/SOL-23] 25 p0065 A80-18555 Energy transition in California [UCHL-15003] 25 p0097 N80-10619 Soviet energy balances [RAND/R-2257-D0E] 25 p0099 N80-10634 Power supply requirements for a tokamak fusion reactor [ANL/FPF/TM-119] 25 p0104 N80-10918
[PB-301390/1] 25 p0 169 N80-15298  Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0 171 N80-15565  Design of photovoltaic systems for residential applications in the United States [SAND-78-2187C] 25 p0 171 N80-15566  Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0 172 N80-15574  Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model) [COO-5022-5] 25 p0 172 N80-15576  Status of the US Department of Energy photovoltaic concentrator development project [SAND-78-2187C] 25 p0 172 N80-15578  Heat pump centered integrated community energy systems: Systems development	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications  [ASHE PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps  [ASHE PAPER 79-WA/SOL-23] 25 p0065 A80-18555  Energy transition in California  [UCRL-15003] 25 p0067 N80-10619  Soviet energy balances  [RAND/R-2257-D0E] 25 p0099 N80-10634  Power supply requirements for a tokamak fusion reactor
[PB-301390/1] 25 p0169 N80-15298  Decentralized solar photovoltaic energy systems  [LA-7866-TASE] 25 p0171 N80-15565  Design of photovoltaic systems for residential applications in the United States  [SAND-78-2186C] 25 p0171 N80-15566  Methodology for determining the configuration of the optimum solar total energy system  [SAND-79-0422] 25 p0172 N80-15574  Research and evaluation of biomass resources/conversion/utilization systems  (market/experimental analysis for development of a data base for a fuels from biomass model)  [C00-5022-5] 25 p0172 N80-15576  Status of the US Department of Energy photovoltaic concentrator development project  [SAND-78-2187C] 25 p0172 N80-15578  Heat pump centered integrated community energy systems: Systems development  [ANL/ICES-TM-30] 25 p0173 N80-15588	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications  [ASHE PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps  [ASHE PAPER 79-WA/SOL-23] 25 p0065 A80-18555  Energy transition in California  [UCRL-15003] 25 p0067 N80-10619  Soviet energy balances  [EAND/R-2257-DOE] 25 p0099 N80-10634  Power supply requirements for a tokamak fusion reactor  [ANL/PPP/TM-119] 25 p0104 N80-10918  MEDDE 2: A model for long term energy demand evaluation
[PB-301390/1] 25 p0169 N80-15298  Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565  Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C] 25 p0171 N80-15566  Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574  Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model) [CO0-5022-5] 25 p0172 N80-15576  Status of the US Department of Energy photovoltaic concentrator development project [SAND-78-2187C]  Heat pump centered integrated community energy systems: Systems development [ANL/ICES-TM-30]  Heat pump centered integrated community energy	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications [ASHE PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps [ASME PAPER 79-WA/SOL-23] 25 p0065 A80-18555  Energy transition in California [UCRL-15003] 25 p0067 A80-10619  Soviet energy balances [RAND/R-2257-DOE] 25 p0099 N80-10634  Power supply requirements for a tokamak fusion reactor [ANL/FPP/TM-119] 25 p0104 N80-10918  MEDEE 2: A model for long term energy demand evaluation [IIASA-BR-78-17] 25 p0109 N80-11554
[PB-301390/1] 25 p0 169 N80-15298  Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0 171 N80-15565  Design of photovoltaic systems for residential applications in the United States [SAND-78-2186c] 25 p0 171 N80-15566  Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0 172 N80-15574  Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model) [COO-5022-5] 25 p0 172 N80-15576  Status of the US Department of Energy photovoltaic concentrator development project [SAND-78-2187C] 25 p0 172 N80-15578  Heat pump centered integrated community energy systems: Systems development [ANL/ICES-TM-30] 25 p0 173 N80-15588  Heat pump centered integrated community energy systems; System development	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications [ASME PAPER 79-WA/TS-6]  A simplified procedure for performance of solar systems with heat pumps [ASME PAPER 79-WA/TS-C23]  Energy transition in California [UCRL-15003]  Soviet energy balances [RAND/R-2257-DOE]  Power supply requirements for a tokamak fusion reactor [ANL/PPP/TH-119]  MEDRE 2: A model for long term energy demand evaluation [IIISA-RR-78-17]  Energy initiatives of the 95th Congress
[PB-301390/1] 25 p0169 N80-15298  Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565  Design of photovoltaic systems for residential applications in the United States [SAND-78-2186c] 25 p0171 N80-15566  Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574  Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model) [CO0-5022-5] 25 p0172 N80-15576  Status of the US Department of Energy photovoltaic concentrator development project [SAND-78-2187C] 25 p0172 N80-15578  Heat pump centered integrated community energy systems: Systems development [ANL/ICES-TM-30] 25 p0173 N80-15588  Heat pump centered integrated community energy systems; System development [ANL/ICES-TM-26] 25 p0173 N80-15589	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications  [ASHE PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps  [ASHE PAPER 79-WA/SOL-23] 25 p0065 A80-18555  Energy transition in California  [UCRL-15003] 25 p0067 A80-10619  Soviet energy balances  [RAND/R-2257-D0E] 25 p0099 N80-10634  Power supply requirements for a tokamak fusion reactor  [ANL/PPP/TM-119] 25 p0104 N80-10918  MEDRE 2: A model for long term energy demand evaluation  [IIASA-RR-78-17] 25 p0109 N80-11554  Energy initiatives of the 95th Congress  [GPO-42-797] 25 p0109 N80-11557
PB-301390/1]  Decentralized solar photovoltaic energy systems  [LA-7866-TASE]  Design of photovoltaic systems for residential applications in the United States  [SAND-78-2187C]  Research and evaluation of biomass resources/conversion/utilization systems  (market/experimental analysis for development of a data base for a fuels from biomass model)  [COO-5022-5]  Status of the US Department of Energy photovoltaic concentrator development project  [SAND-78-2187C]  Reat pump centered integrated community energy systems: Systems development  [ANL/ICES-TM-30]  Reat pump centered integrated community energy systems; System development  [ANL/ICES-TM-26]  Utilization of waste heat from Federal facilities  [ORO-5523-T1]  25 p0173 N80-15590	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications  [ASHE PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat rumps  [ASHE PAPER 79-WA/SOL-23] 25 p0065 A80-18555  Energy transition in California  [UCHL-15003] 25 p0067 A80-10619  Soviet energy balances  [RAND/R-2257-DOE] 25 p0099 N80-10634  Power supply requirements for a tokamak fusion reactor  [ANL/PPP/TM-119] 25 p0104 N80-10918  MEDEE 2: A model for long term energy demand evaluation  [IIASA-RR-78-17] 25 p0109 N80-11554  Energy initiatives of the 95th Congress  [GPO-42-797] Disaggregating PIES fuel forecasts, validating
PB-301390/1]  Decentralized solar photovoltaic energy systems [LA-7866-TASE]  Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C]  Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C]  Design of photovoltaic systems  SAND-78-2186C]  Design of photovoltaic systems  SAND-79-0422  Design of careful systems  SAND-79-0422  Design of careful systems  Conserved systems  Sand-15574  Design of careful systems  Design of careful systems  Design of careful systems  Sand-15574  Design of careful systems  Design of careful systems  Design of careful systems  Sand-15576  Design of careful systems  Sand-15576  Design of careful systems  Sand-15576  Design of careful systems  Design of careful s	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications [ASME PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps [ASME PAPER 79-WA/SOL-23] 25 p0065 A80-18555  Energy transition in California [UCRL-15003] 25 p0067 N80-10619  Soviet energy balances [RAND/R-2257-DOE] 25 p0099 N80-10634  Power supply requirements for a tokamak fusion reactor [ANL/PPP/TM-119] 25 p0104 N80-10918  MEDEE 2: A model for long term energy demand evaluation [IIASA-BR-78-17] 25 p0109 N80-11554  Energy initiatives of the 95th Congress [GPO-42-797] 25 p0109 N80-11554  Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other
PB-301390/1]  Decentralized solar photovoltaic energy systems  [LA-7866-TASE]  Design of photovoltaic systems for residential applications in the United States  [SAND-78-2186c]  Sand-79-0422]  Research and evaluation of biomass  resources/conversion/utilization systems  (market/experimental analysis for development of a data base for a fuels from biomass model)  [CO0-5022-5]  Status of the US Department of Energy photovoltaic concentrator development of Energy photovoltaic concentrator development of music systems:  Systems: Systems development  [ANL/ICES-TM-30]  Heat pump centered integrated community energy systems; Systems (evelopment [ANL/ICES-TM-26])  Utilization of waste heat from Federal facilities  [ORO-5523-T1]  Spo173 N80-15590  National program plan for passive and hybrid solar	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications  [ASME PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps  [ASME PAPER 79-WA/SOL-23] 25 p0065 A80-18555  Energy transition in California  [UCRL-15003] 25 p0067 N80-10619  Soviet energy balances  [ENND/R-2257-DOE] 25 p0099 N80-10634  Power supply requirements for a tokamak fusion reactor  [ANL/PPP/H-119] 25 p0104 N80-10918  MEDDE2 2: A model for long term energy demand evaluation  [IIASA-RR-78-17] 25 p0109 N80-11554  Energy initiatives of the 95th Congress  [GPO-42-797] Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services
[PB-301390/1] 25 p0169 N80-15298  Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565  Design of photovoltaic systems for residential applications in the United States [SAND-78-2186c] 25 p0171 N80-15566  Methodology for determining the configuration of the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574  Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model) [COO-5022-5] 25 p0172 N80-15576  Status of the US Department of Energy photovoltaic concentrator development project [SAND-78-2187C] 25 p0172 N80-15578  Heat pump centered integrated community energy systems: Systems development [ANL/ICES-TM-30] 25 p0173 N80-15588  Heat pump centered integrated community energy systems; System development [ANL/ICES-TM-26] 25 p0173 N80-15589  Utilization of waste heat from Federal facilities [ORO-5523-T1] 25 p0173 N80-15590  National program plan for passive and hybrid solar heating and cooling [DOE/CS-0089] 25 p0174 N80-15598	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications [ASME PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps [ASME PAPER 79-WA/SOL-23] 25 p0065 A80-18555  Energy transition in California [UCHL-15003] 25 p0067 A80-18555  Energy transition in California [UCHL-15003] 25 p0069 A80-10619  Soviet energy balances [RAND/R-2257-D0E] 25 p0099 N80-10634  Power supply requirements for a tokamak fusion reactor [ANL/PPP/TM-119] 25 p0104 N80-10918  MEDRE 2: A model for long term energy demand evaluation [IIISA-RB-78-17] 25 p0109 N80-11557  Energy initiatives of the 95th Congress [GPO-42-797] 25 p0109 N80-11557  Disaggregating PIES fuel forecasts, validating FIES transportation model data base, and other technical services [TID-29000] 25 p0114 N80-11612
PB-301390/1]  Decentralized solar photovoltaic energy systems  [LA-7866-TASE]  Design of photovoltaic systems for residential applications in the United States  [SAND-78-2186c]  SAND-79-0422]  Research and evaluation of biomass  resources/conversion/utilization systems  (market/experimental analysis for development of a data base for a fuels from biomass model)  [COO-5022-5]  Status of the US Department of Energy photovoltaic concentrator development of photovoltaic concentrator development of munity energy systems:  Systems: Systems development  [ANL/ICES-TM-30]  Reat pump centered integrated community energy systems; Systems development  [ANL/ICES-TM-26]  Utilization of waste heat from Federal facilities  [ORO-5023-T1]  Systems Forth and photovoltaic community energy systems; System development  [ANL/ICES-TM-26]  Utilization of waste heat from Federal facilities  [ORO-5023-T1]  Systems Forth and photovoltaic community energy  Systems; System development  [ANL/ICES-TM-26]  Utilization of facilities  [ORO-5023-T1]  Systems Forth and photovoltaic community energy  Systems; System development  [ANL/ICES-TM-26]  Utilization of facilities  [ORO-5023-T1]  Systems and hybrid solar heating and cooling  [DOE/CS-0089]  Department of Energy large solar central power	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications [ASME PAPER 79-WA/TS-6]  A simplified procedure for performance of solar systems with heat pumps [ASME PAPER 79-WA/SOL-23]  Energy transition in California [UCRL-15003]  Soviet energy balances [RAND/R-2257-DOE]  Power supply requirements for a tokamak fusion reactor [ANL/PPP/TM-119]  MEDEE 2: A model for long term energy demand evaluation [IIASA-BR-78-17]  Energy initiatives of the 95th Congress [GPO-42-797]  Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services [TID-29000]  Fuel choice and aggregate energy demand in the
PB-301390/1]  Decentralized solar photovoltaic energy systems [LA-7866-TASE]  Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C]  Ethodology for determining the configuration of the optimum solar total energy system  [SAND-79-0422]  Desearch and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model)  [COO-5022-5]  Status of the US Department of Energy photovoltaic concentrator development project [SAND-78-2187C]  Heat pump centered integrated community energy systems: Systems development [ANL/ICES-TM-30]  Heat pump centered integrated community energy systems: System development [ANL/ICES-TM-26]  Utilization of waste heat from Federal facilities [ORO-5523-T1]  Department of Energy large solar central power systems semiannual review	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications [ASME PAPER 79-WA/TS-6]  A simplified procedure for performance of solar systems with heat pumps [ASME PAPER 79-WA/SOL-23]  Energy transition in California [UCRL-15003]  Soviet energy balances [RAND/R-2257-DOE]  Power supply requirements for a tokamak fusion reactor [AML/PPP/TM-119]  MEDDEZ 2: A model for long term energy demand evaluation [IIASA-RR-78-17]  Energy initiatives of the 95th Congress [GPO-42-797]  Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services [TID-29000]  Puel choice and aggregate energy demand in the commercial sector electricity, natural gas,
PB-301390/1]  Decentralized solar photovoltaic energy systems [LA-7866-TASE]  Design of photovoltaic systems for residential applications in the United States [SAND-78-2186c]  Espoint properties and evaluation of the optimum solar total energy system  [SAND-79-0422]  Research and evaluation of biomass  resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model)  [COO-5022-5]  Status of the US Department of Energy photovoltaic concentrator development project  [SAND-78-2187C]  Heat pump centered integrated community energy systems: Systems development  [ANL/ICES-TM-30]  Heat pump centered integrated community energy systems; System development  [ANL/ICES-TM-26]  Systems for Federal facilities  [ORO-5523-T1]  National program plan for fassive and hybrid solar heating and cooling  [DOC/CS-0089]  Department of Energy large solar central power systems semiannual review  [SAND-79-8508]  25 p0175 N80-15502	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications  [ASHE PAPER 79-WA/TS-6] 25 p0065 A80-18552  A simplified procedure for performance of solar systems with heat pumps  [ASHE PAPER 79-WA/SOL-23] 25 p0065 A80-18555  Energy transition in California  [UCBL-15003] 25 p0097 N80-10619  Soviet energy balances  [RAND/R-2257-DOE] 25 p0099 N80-10634  Power supply requirements for a tokamak fusion reactor  [ANL/PPP/TM-119] 25 p0104 N80-10918  MEDRE 2: A model for long term energy demand evaluation  [IIASA-RR-78-17] 25 p0109 N80-11554  Energy initiatives of the 95th Congress  [GPO-42-797] 25 p0109 N80-11557  Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services  [TID-29000] 25 p0114 N80-11612  Fuel choice and aggregate energy demand in the commercial sector electricity, natural gas, and fuel oil
PB-301390/1]  Decentralized solar photovoltaic energy systems [LA-7866-TASE]  Design of photovoltaic systems for residential applications in the United States [SAND-78-2186C]  Ethodology for determining the configuration of the optimum solar total energy system  [SAND-79-0422]  Desearch and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model)  [COO-5022-5]  Status of the US Department of Energy photovoltaic concentrator development project [SAND-78-2187C]  Heat pump centered integrated community energy systems: Systems development [ANL/ICES-TM-30]  Heat pump centered integrated community energy systems: System development [ANL/ICES-TM-26]  Utilization of waste heat from Federal facilities [ORO-5523-T1]  Department of Energy large solar central power systems semiannual review	The policy of the European Economic Community in the field of energy savings  25 p0050 A80-17223  Net energy analysis of alcohol production from sugarcane  25 p0062 A80-18165  Economic comparisons of solar and fossil total energy systems for industrial applications  [ASHE PAPER 79-WA/TS-6]  A simplified procedure for performance of solar systems with heat pumps  [ASHE PAPER 79-WA/TS-6]  A simplified procedure for performance of solar systems with heat pumps  [ASHE PAPER 79-WA/SOL-23]  Energy transition in California  [UCRL-15003]  Soviet energy balances  [ENND/R-2257-D0E]  Power supply requirements for a tokamak fusion reactor  [ANL/PPP/TM-119]  MEDDEZ 2: A model for long term energy demand evaluation  [IIASA-RR-78-17]  Energy initiatives of the 95th Congress  [GPO-42-797]  Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services  [TID-29000]  25 p0114 N80-11612  Fuel choice and aggregate energy demand in the commercial sector electricity, natural gas,

SUBJECT INDEX PREEST STORAGE

	·
Constraints on energy conservation	Report of the Alcohol Fuel Policy Review
[ORAU/IEA-78-17(M)] 25 p0127 N80-12594	[DOE/PE-0012] 25 p0169 N80-15290
A regional approach to forecasting electric energy	Environmental overview of geothermal development:
requirements for environmental assessments	The Geysers-Calistoga KGRA. Volume 1: Issues
25 p0130 N80-12619	and recommendations
Case study of the Brownell low energy requirement	[UCRL-52496-VOL-1] 25 p0177 N80-15626
house	Photochemical conversion and storage of solar energy
[BNL-50968] 25 p0142 N80-13651	25 p0009 A80-11829
Mission analysis for the Federal fuels from biomass program. Volume 3: Feedstock	Overview of division of energy storage program
availability	Department of energy
[SAN-0115-T1] 25 p0168 N80-15276	25 p0016 A80-11979
Fuel utilization in residences	Flywheels for energy storage
[EPRI-EA-894] 25 p0175 N80-15604	25 p0019 A80-12166
Nuclear strategy of the Department of Energy	A microeconomic approach to passive solar design -
[DOE/ER-0025/D] 25 p0175 N80-15605	Performance, cost, optimal sizing and comfort
Energy demand in the developing countries	analysis
[DOE/EIA-0183/10] 25 p0177 N80-15631	25 p0021 A80-12433
MARKAL: A multiperiod linear-programming model	Electrochemical storage of photovoltaic solar energy
for energy systems analysis (BNL version)	25 p0 025 A80-12757
[BNL-26390] 25 p0178 N80-15634	Thermodynamic and structural properties of
ENERGY SOURCES	LaNi/5-y/Aly compounds and their related hydrides
United States energy alternatives to 2010 and	25 p0033 A80-13200
beyond, - The CONAES study	Heat transfer to a melting solid with application
25 p00C8 A80-11827	to thermal energy storage systems
Power sources 7: Research and development in	25 p0036 A80-14667
non-mechanical electrical power sources;	Hydrogen storage by means of reversible magnesium
Proceedings of the Eleventh International	alloy 25 p0041 A80-15990
Symposium, Brighton, Sussex, England, September	Use of reversible hydrides for hydrogen storage
25-28, 1978	25 p0042 A80-15991
25 p0009 A80-11837 Gas recovery from unconventional sources	Hydrogen storage by use of cryoadsorbents in
25 p0014 A80-11958	comparison to alternatives
Development of renewable energy sources in the	25 p0042 A80-15992
United Kingdom	Operational and parameter studies of a
25 p0017 A80-11980	solar-powered absorption cycle system with
Energy plantation for coromandel littoral	internal latent energy storages
growing plant materials for fuel value in India	[ASME PAPER 79-WA/SOL-27] 25 p0067 A80-18568
25 p0023 A80-12742	Are large concentration of atomic H storable in
The European economic community's policy	tritium-impregnated solid in H2 below 0.10 K
concerning natural gas, coal and new sources of	25 p0072 A80-18728
energy	International Conference on the Photochemical
25 p0032 A80-13175	Conversion and Storage of Solar Energy, 2nd,
The helium question future domestic	Cambridge University, Cambridge, England, August
consumption vs storage of current natural gas	10-12, 1978, Lectures
derived supplies	25 p0072 A80-18746
25 p0034 A80-13589	Energy storage in organic photoisomers
Hydrogen fuel applications for urban transit	25 p0072 A80-18747
25 p0037 A80-14703	Applications analysis of fixed site hydrogen storage [SAND-78-8272] 25 p0092 N80-10384
An optimization model for overall urban energy	Hydrogen storage as a hydride. Citations from the
planning 25 p0038 A80-14844	international aerospace abstracts data base
Harnessing power from tides - State of the art	[NTIS/PS-79/0772/8] 25 p0094 N80-10402
25 p0045 A80-16658	Methods of estimating the reliability of wind
Can alternative energy resources be brought into	energy systems with storage
large-scale use in the United States by the year	[UCRL-15005] 25 p0098 N80-10623
2000	Battery Energy Storage Test (BEST) facility
25 p0048 A80-17128	[EPRI-EM-1005] 25 p0098 N80-10628
Global perspectives and options for long-range	Plywheel energy storage and conversion system for
energy strategies	solar photovoltaic applications
25 p0048 A80-17130	[COO-4094-31] 25 p0100 N80-10639
Global aspects of sunlight as a major energy source	Experimental and numerical studies of liquid
25 p0048 A80-17131	storage tank thermal stratification for a solar
Climatic impact of alternative energy sources	energy system [COO-4479-2] 25 p0101 N80-10655
25 p0050 A80-17140	
Geology of the Athabasca oil sands	Solar generation of industrial steam. Innovative research program subtask
25 p0050 A80-17236	[COO-4546-9] 25 p0101 M80-10656
Ethyl alcohol production and use as a motor fuel	Solar pond concepts: Old and new
Book 25 p0050 A80-17241	[SERI/TP-35-208] 25 p0102 M80-10663
Ocean energy - Forms and prospects	Effect of mechanical energy storage systems on the
25 p0061 A80-18162	characteristics of electric vehicles
On the substitution of petroleum by other energy	[UCRL-82710] 25 p0102 N80-10664
sources - Using the energy economics of West	Lead batteries, volume 2. Citations from the
Germany as an example	engineering index data base
25 p0074 A80-19000	[NTIS/PS-77/0634] 25 p0103 N80-10681
Near term potential of wood as a fuel	Energy storage systems for automobile propulsion,
[HCP/C4101] 25 p0093 N80-10389	1978 study. 1: Overview and findings
EPRI new energy resources department strategy paper	[UCRL-52553-VOL-1] 25 p0105 N80-10970
[EPRI-ER-979] 25 p0097 N80-10610	Design considerations for a proposed passive
Health and environental effects of ccal	vacuum solar annular receiver
gasification and liquefaction technologies: A	[SAND-78-0982] 25 p0111 N80-11582
workshop summary and panel reports	Regenerative flywheel energy storage system
[PB-297618/1] 25 p0104 N80-10701	[UCRL-13982] 25 p0112 N80-11594
Increased energy from biomass: 1985 possibilities	Materials program for fiber composite flywheels [UCRL-81724] 25 p0115 N80-11618
and problem. Working papers for planners [RLO-788-5] 25 p0112 N80-11589	[UCRL-81724] 25 p0115 N80-11618 Lateral and tilt whirl modes of flexibly mounted
[RLO-788-5] ' 25 p0112 N80-11589 Cost analysis of aquatic biomass systems	flywheel systems for energy storage
[HCP/ET/4000-78/1] 25 p0120 N80-12202	[SAND-78-7070] 25 p0115 x80-11622

Underground pumped hydro storage: An overview
[CONF-781046-1] 25 p0116 N80-11624 Design optimization of aquifer reservoir-based
compressed air storage systems
[CONF-781046-5] 25 p0116 N80-11628 Application of packed beds to energy storage use
of latent heat of fusion
Anton permselective membrane 25 p0121 N80-12353
[NASA-CR-159599] 25 p0122 N80-12551
The USAF Academy flywheel-electric car preliminary design report
[AD-A071242] 25 p0123 N80-12553 Batteries for specific solar applications
[SAND-79-1428C] 25 p0124 N80-12559
Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590
nechanical energy storage technology development
for electric and hybrid vehicle applications [UCRL-81786] 25 p0128 N80-12596
Research on the dynamics of band-supported flywheel systems
[SAND-78-7074] 25 p0128 N80-12597
Hydrogen-halogen energy storage system [BNL-50924] 25 p0139 N80-13632
Multi-year plan for thermal and mechanical energy
storage program [DOF/ET-0109] 25 p0142 N80-13658
Large-scale annual-cycle thermal energy storage in
aquifers [CONF-790515-3] 25 p0145 N80-13686
Photosensitization mechanisms for energy storing
isomerizations [AD-A074968] 25 p0156 N80-14502
Energy storing organic photoreactions
Analysis of remote site energy storage and
generation systems systems analysis of solar energy conversion and windpower utilization
energy storage systems
[AD-A074869] 25 p0156 N80-14504 Lithium/metal sulfide battery development
[CONF-790538-10] 25 p0159 N80-14530
Dissociation pressure measurements on salts proposed for thermochemical energy storage
[SAND-79-8033] 25 p0160 N80-14532
Compressed air energy storage technology program concept for supplying electric power to meet
peak load demands [PNL-2935] 25 p0160 N80-14534
Superconducting magnetic energy storage for
electric power system dynamic stabilization [LA-UR-79-1220] 25 p0160 N80-14535
Proceedings of the DOE chemical/hydrogen energy
contractor review systems [CONF-771131] 25 p0164 N80-14572
Review of industrial participation on the ANY
lithium/iron sulfide battery development program for energy storage and electric vehicles
[CONF-780852-1] 25 p0164 N80-14573 Assessment of the applicability of mechanical
energy storage devices to electric and hybrid
vehicles. Volume 1: Executive summary [UCRL-52773-VOL-1] 25 p0166 N80-14973
Novel scheme for making cheap electricity with
nuclear energy [UCID-18153-REV-1] 25 p0171 N80-15564
Peasibility of compressed air energy storage as a
peak shaving technique in California, Volume 2 [SAN-1331-T1] 25 p0174 N80-15596
Dynamic storage in solar total energy programs
Flywheel energy storage interface unit for
photovoltaic applications [COO-4094-44] 25 p0175 N80-15609
Lithium/iron sulfide batteries for electric vehicles
[CONF-781006-2] 25 p0 175 N80-15611 Laminated disk flywheel program
[UCRL-81772] 25 p0175 N80-15612
Overview of flywheel energy storage component development
[SAND-78-1999c] 25 p0176 N80-15623 Sandia composite-rim flywheel development
[SAND-78-1865C] 25 p0177 N80-15624
Turbomachinery options for an underground pumped hydroelectric storage plant
[CONF-790803-50] 25 p0177 N80-15629

```
Flywheel energy storage and conversion system for
      photovoltaic applications
[COC-4094-48]
                                                 25 p0178 N80-15635
    Solar mechanical energy storage program overview
      and systems analysis results [SAND-79-1642C]
                                                 25 p0178 N80-15637
    [SAND-79-1042C]
Energy program at the Johns Hopkins University
Applied Physics Laboratory
[FB-310245/7]
Environmental development plan: Electric Energy
                                                 25 p0179 N80-15648
      Systems
      [ DOE/EDP-0038]
                                                 25 p0179 N80-15669
    Energy storage system for automobile propulsion,
1978 study. 2: Detailed report
[OCRL-52553-VOL-2] 25 p0181 880-15995
ENERGY TECHNOLOGY
    Microstructural objectives for high-temperature
      alloys in advanced energy systems
                                                25 p0002 A80-10306
                                                --- Russian Look
25 p0002 A80-10349
    Hydrogen - The fuel of the future
    A cheap method of improving the performance of
      roof type solar stills
                                                25 p0006 A80-11343
    Is there a chance for OTEC
    25 p0007 A80-11394
Soft and hard energy paths - The roads not taken
      --- political, technical and philosophical aspects of energy problem
                                                25 p0007 A80-11400
    Annual review of energy. Volume 4 --- Book
                                                25 p0008 A80-11826
   United States energy alternatives to 2010 and beyond - The CONAES study
   25 p0008 A80-11827 The compatibility of wind and solar technology
      e compatibility or wind and social with conventional energy systems 25 p0008 a80-11828
   Power sources 7: Research and development in
      non-mechanical electrical power sources;
Proceedings of the Eleventh International
      Symposium, Brighton, Sussex, England, September 25-28, 1978
                                                25 p0009 A80-11837
   Energy technology VI: Achievements in perspective;
Proceedings of the Sixth Conference, Washington,
D.C., February 26-28, 1979
                                                25 p0013 A80-11953
    Economics/reliability trade-offs in materials for
      onomics/reliability trade-oris in materials various coal conversion and utilization processes 25 p0016 A80-11975
   Materials research - Probable impacts on solar
      energy
                                                25 p0018 A80-11991
   Processing of coal, oil sand and heavy oil in situ
by electric and magnetic fields
                                                25 p0019 A80-12310
   Physical modelling of the electromagnetic heating
      of oil sand and other earth-type and biological
                                                25 p0020 A80-12311
   Heliostat Beam Characterization System
      computerized video radiometer technique for
      solar collector
                                                25 p0022 A80-12627
   Solar energy for rural development: Proceedings of
      the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978
                                                25 p0023 A80-12739
   Cadmium telluride solar cells
   $25\ p0026\ A80-12765$ Theoretical consideration of curve fill factor in
      solar cells
                                                25 p0026 A80-12768
   Laser fusion - Energy application perspectives 25 p0030 &80-12883
   Progress in R and D on coal liquefaction -
Progress in research-development on coal
      liquefaction
                                               25 p0030 A80-12940
   Progress and development trends in coal gasification and liquefaction technologies
                                                25 p0031 A80-12945
   Progress and development trends in coal
      gasification and liquefaction technologies -
      Recent achievements in conventional coal
      gasification processes
                                                25 p0031 A80-12947
```

Progress and development trends in coal gasification and liquefaction technologies -Underground coal gasification 25 p0031 A80-12948 Fuel cell sesquicentennial 25 p0033 A80-13223 Earth benefits of solar power satellites 25 p0038 A80-14791 A review of the U.S. wind energy programme 25 p0042 A80-16083 Efficiency improvements in bioenergy conversion 25 p0047 A80-16995 Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Puel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979 25 p0047 A80-17126 Exploring alternative energy strategies 25 p0047 A80-17127 Can alternative energy resources be brought into large-scale use in the United States by the year 25 p0C48 A80-17128
Ocean thermal energy conversion /OTEC/ - Social and environmental issues 25 p0049 A80-17135 The application potential of hydro power 25 p0049 A80-17136 Petroleum plantations and synthetic chloroplasts 25 p0C49 A80-17137 Prospects of future geothermal energy development . 25 p0049 A80-17138
Comparative risk assessment of energy systems 25 p0049 A80-17139 The present status of coal gasification following the 14th World Gas Congress Toronto 1979 25 p0050 A80-17222 The relative value of energy derived from municipal refuse 25 p0051 A80-17352 Solar-hydrogen energy systems --- Book 25 p0051 A80-17573 Introduction - A review of the scope --solar-hydrogen energy conversion 25 p0052 A80-17574 Solar-powered liquid-metal MBD power systems
[ASME PAPER 79-WA/SOL-22] 25 p0065 A80-18554 [ASHE PAPER /9-WA/SOL-22] 25 p0065 A80-Superheated steam generation in a Presnel lens concentrating collector [ASHE PAPER 79-WA/SOL-21] 25 p0067 A80-A small hybrid solar closed-cycle gas turbine cogeneration plant concept based on today's 25 p0067 A80-18567 technology [ASHE PAPER 79-WA/GT-3] 25 p0071 A80-18637 International Conference on the Photochemical Conversion and Storage of Solar Energy, 2nd, Cambridge University, Cambridge, England, August 10-12, 1978, Lectures 25 p0072 A80-18746 Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, University of Pittsburgh, Pittsburgh, Pa., April 25-27, 1979. Part 3 - Energy and environment 25 p0087 A80-20881 Coal conversion systems: Technical data book [HCP/T2286-01] 25 p0093 N80-10392 [HCP/T2286-01] 25 p0093 N80-Ocmulgee national monument visitor center solar heating and cooling system design review data [NASA-CR-150706] 25 p0096 N80-10601 [ NASA-CR-150706 ] Solar heating and cooling systems design and development [NASA-CR-150618] Technology development for phosphoric acid fuel cell powerplant, phase 2 [NASA-CR-159705] 25 p0096 N80-10603 Dispersed power systems and total energy
[SAND-78-2006C] 25 p0096 N80-10608 EPRI new energy resources department strategy paper
[EPRI-ER-979] 25 p0097 N80-10610
Summary report of the Solar Reflective Materials Technology Workshop [PNL-27631 25 p0097 N80-10613 Energy information data base. Corporate author entries [DOE/TIC-4585-R1-SUPPL-1] 25 p0097 N80-10617 methods of estimating the reliability of wind energy systems with storage
[UCBL-15005] 25 p0098 N86 25 p0098 N80-10623

Solar assisted heat pump overview and summary of in-house research [BNL-24911] 25 p0098 N80-10624 Methodology for identifying materials constraints to implementation of solar energy technologies
[PNL-2711] 25 p0098 M80-10625 Sensitivity study of Brayton cycle power plant performance [SAND-78-8020] 25 p0098 N80-10626 Survey of solar thermal energy storage subsystems thermal/electric applications [OBNL/TH-5758] 25 p0098 N80-Environmental data for energy technology policy analysis. Volume 1: Summary [HCP/EV6119-1] 25 p0098 N80-25 p0098 N80-10627 25 p0098 N80-10629 Environmental readiness of emerging energy technologies [DOE/ERD-0022] 25 p0099 N80-10631 Resolving environmental issues in energy development: Roles for the Department of Energy and its field offices [RAND/R-2335-DOF] 25 p0099 N80-10636 Selected results from the technology assessment of solar energy program [LA-UR-79-950] 25 p0099 N80-10637 Optimal control studies of a solar heating system
[LA-UR-78-2556] 25 p0100 880-10646 Determination of the technical and economic feasibility of luminescent solar concentrators [SAND-79-7005] 25 p0100 N80-10650 Solar energy system performance evaluation: A-Frame Industries, single family dwelling, Kaneohe, Hawaii [SOLAR/1010-78/14] 25 p0101 N80-10659 Waste Heat Utilization: Proceedings of 1978 Engineering Foundation Conference [CCNF-7808102] 25 p0102 N80-10665 Geothermal resources and technology in the United States [FB-296623/2] 25 p0102 N80-10677 Proposed research planning format for the Environmental Assessment Department --and concerns of groups concerned with environment and energy issues [EPRI-EA-1018] 25 p0103 N80-10692 Environmental implications for geothermal energy development [CONF-790445-3] 25 p0103 N80-10694 National Gas Survey report to the Federal Energy Regulatory Commission by the Supply-Technical Advisory Task Force on nonconventional natural gas resources [DOE/FERC-0010] [DOE/FEEC-0010] 25 p0107 N80-11251 The automated array assembly task of the low-cost silicon solar array project, phase 2
[NASA-CR-162429] 25 p0109 N80-11562
Heat pump centered integrated community energy systems: System development
[ANI/ICES-TM-27]
Heat pump centered integrated community energy
systems: System development 25 p0110 N80-11571 [ANL-ICES-TH-28] 25 p0111 N80-11574 Wind energy systems: Program summary [DOE/ET-0093] 25 25 p0111 N80-11578 Regional reference energy systems: Electric utility applications [BNL-50962] LENL-50962] 25 p0111 N80-11585
DOE heat pump centered integrated community energy
systems project
[CONF-790362-1] 25 p0112 N80-11506 World Energy Data System (WFNDS) [CONF-790461-2] 25 p0 112 N80-11587 Regenerative flywheel energy storage system [UCRL-13982] 25 p0112 N80-11594 OTEC thermal resource report for Caribbean Sea
Plant Shir 13-15 degrees N 75-80 degrees N
[ECP/T2898] 25 p0113 N80-11599 Energy storage for solar air conditioning applications utilizing a form-stable, high density polyethylene pellet bed [MIM-2598(OP)] 25 p0113 N 25 p0113 N80-11603 Hydrogen-electric power drives [SLAC-PUB-2203] 25 p0113 N80-11604 [DOE/PE-0010] 25 p0115 N80-11621 Underground pumped hydro storage: [CONF-781046-1] 25 p0116 N80-11624

National environmental/energy workshop assessment,
phase 3. Energy programs directory of
courses available
[PB-298587/7] 25 p0117 N80-11634
Energy development vs water quality in the upper
Colorado and upper Missouri River Basins
[LA-7497-MS] 25 p0117 N80-11641
Report on Pinnish technological activities
25 p0119 N80-11991
Gasification of residual materials from coal
liquefaction. Evaluation of SRC 2 vacuum flash
drum bottoms from Powhatan coal as a feedstock
for the Texaco gasification processes
[FE-2247-2] 25 p0119 N80-12191
Status of the PEATGAS process
[CONP-781045-3] 25 p0120 N80-12199
Measurement techniques for high-power
semiconductor materials and devices:
application to energy technologies
[PB-298574/5] 25 p0121 N80-12300
Automated longwall guidance and control systems,
phase 1
[NASA-CR-161329] 25 p0122 N80-12538
Automated longwall guidance and control systems,
phase 2, part 2: Vertical control system (VCS)
[NASA-CE-161330] 25 p0122 N80-12539
Automated longwall guidance and control systems,
phase 2, part 2: BCS, FAS, and MCS
[NASA-CR-161331] 25 p0122 N80-12540
Overview of in eith oil chale technology and
Overview of in situ oil shale technology and
recent advances in true in situ retort modeling
[SAND-78-2367C] 25 p0122 N80-12543
Inventory of advanced energy technologies and
energy conservation research and development,
1976-1978, volume 1
[GPO-41-481] 25 p0122 N80-12550
The USAF Academy flywheel-electric car preliminary design report
design report
[AD-A071242] 25 p0123 N80-12553
Batteries for specific solar applications
[SAND-79-1428C] 25 p0124 N80-12559
Thermoelectric ocean thermal energy conversion
[SERI/TP-35-254] 25 p0 124 N80-12564
Systems Analysis and testing (SAT) program
Dietolo nicipio dna tenting (hai) program
[CPDT/DE_36_3131
[SERI/PR-35-313] 25 p0124 N80-12565
Low-temperature thermal energy storage program
Low-temperature thermal energy storage program annual operating rlan
Low-temperature thermal energy storage program annual operating rlan
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Bankine-cycle engine systems
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERL/RR-53-045] 25 p0126 N80-12578
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RR-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Bankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583
Low-temperature thermal energy storage program annual operating plan [ORNL/TH-6605] 25 p0125 N80-12568 Evaluation of solar Bankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RH-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SEEL/RR-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/FT-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RR-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOF/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RR-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOF/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Bankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [IBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-701-2] 25 p0127 N80-12589
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Bankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [BE-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [IBI-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/FT-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [IBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] Crystallographic contributions to the energy problem
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems 52 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RR-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Bankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] Energy information data base. Serial titles,
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [IBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [IBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles,
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RR-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12590 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12590 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RR-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12599 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles,
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [IBI-6308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606 Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12589 Crystallographic contributions to the energy problem [CONP-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [IBI-6308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606 Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [IBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606 Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy technologies for California
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [IBI-6308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBI-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12590 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606 Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy technologies for California [UCEL-15002] 25 p0131 N80-12628
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12599 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12599 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568  Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571  Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578  United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583  Experimental test facility for evaluation of solar control strategies [IBL-8308] 25 p0126 N80-12586  Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589  Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590  Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12590  Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601  Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606  Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613  Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628  Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12710
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-V0L-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12589 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628 Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12710 Search for fusion power [UCL-31890] 25 p0132 N80-12900
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-V0L-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12589 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628 Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12710 Search for fusion power [UCL-31890] 25 p0132 N80-12900
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [IBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12606 Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628 Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12710 Search for fusion power [UCKL-81890] 25 p0132 N80-12900 Demand for special performance vehicles, 1975 - 2025
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568  Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571  Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578  United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583  Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586  Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589  Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590  Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12590  Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12606  Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12606  Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613  Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628  Wind resource analysis 25 p0132 N80-12710  Search for fusion power [UCRL-81890] 25 p0132 N80-12900  Demand for special performance vehicles, 1975 - 2025 [UCRL-13911] 25 p0133 N80-12960
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RR-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12589 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12606 Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628 Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12710 Search for fusion power [UCRL-31890] 25 p0133 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-13911] 51 p01031 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-13911] 51 p01031 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-13911] 51 p01031 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-13911] 51 p01031 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-13911] 51 p01031 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-13911] 51 p01031 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-13911] 51 p01031 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-13911] 51 p01031 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-13911] 51 p01031 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-13911] 51 p01031 N80-12900 Demand
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606 Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628 Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12710 Search for fusion power [UCRL-31891] 25 p0133 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-31890] 25 p0133 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-31890] 25 p0133 N80-12960 Biological transformation of light energy into methane using an anaerobic filter
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOL/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [IBI-0308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBI-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12590 Energy information data base. Serial titles, February 1976 - March 1979 [DOL/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12606 Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606 Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy technologies for California [UCEL-15002] 25 p0131 N80-12628 Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12710 Search for fusion power [UCEL-31890] 25 p0132 N80-12700 Demand for special performance vehicles, 1975 - 2025 [UCEL-13911] 25 p0133 N80-12960 Biological transformation of light energy into methane using an anaerobic filter
Low-temperature thermal energy storage program annual operating plan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] 25 p0127 N80-12606 Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628 Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12710 Search for fusion power [UCRL-31891] 25 p0133 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-31890] 25 p0133 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-31890] 25 p0133 N80-12960 Biological transformation of light energy into methane using an anaerobic filter
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568  Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571  Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RR-53-045] 25 p0126 N80-12578  United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583  Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586  Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589  Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590  Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598  Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601  Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606  Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613  Environmental aspects of alternative energy technologies for California [UCEL-15002] 25 p0132 N80-12628  Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12628  Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12710  Search for fusion power [UCEL-31890] 25 p0133 N80-12900  Demand for special performance vehicles, 1975 - 2025 [UCEL-13911] 25 p0133 N80-12900  Demand for special performance vehicles, 1975 - 2025 [UCEL-13911] 25 p0133 N80-12900  Demand for special performance vehicles, 1975 - 2025 [UCEL-13911] 25 p0133 N80-12900  Demand for special performance vehicles, 1975 - 2025 [UCEL-13911] 25 p0133 N80-12900
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568 Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RB-53-045] 25 p0126 N80-12578 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590 Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12590 Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601 Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606 Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613 Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628 Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12710 Search for fusion power [UCRL-31890] 25 p0133 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-31991] 25 p0133 N80-12900 Demand for special performance vehicles, 1975 - 2025 [UCRL-31991] 25 p0133 N80-12960 Biological transformation of light energy into methane using an anaerobic filter 25 p0133 N80-12267 Gas generator research and development: BI-GAS
Low-temperature thermal energy storage program annual operating flan [ORNL/TM-6605] 25 p0125 N80-12568  Evaluation of solar Rankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571  Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RR-53-045] 25 p0126 N80-12578  United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583  Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586  Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589  Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590  Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598  Energy information data base. Serial titles, February 1976 - March 1979 [DOE/TIC-4579-R10-SUPPL-4] 25 p0128 N80-12601  Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606  Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] 25 p0130 N80-12613  Environmental aspects of alternative energy technologies for California [UCEL-15002] 25 p0132 N80-12628  Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12628  Wind resource analysis [SERI/TR-36-088] 25 p0132 N80-12710  Search for fusion power [UCEL-31890] 25 p0133 N80-12900  Demand for special performance vehicles, 1975 - 2025 [UCEL-13911] 25 p0133 N80-12900  Demand for special performance vehicles, 1975 - 2025 [UCEL-13911] 25 p0133 N80-12900  Demand for special performance vehicles, 1975 - 2025 [UCEL-13911] 25 p0133 N80-12900  Demand for special performance vehicles, 1975 - 2025 [UCEL-13911] 25 p0133 N80-12900

```
Methane recovery from coalbeds project. Technology test projects: Evaluation of candidate projects [METC-8089-T4] 25 p0135 M80-13290
 Research and development of an advanced process
   for conversion of coal to synthetic gasoline and other distillate motor fuels
   [FE-1800-30]
                                                 25 p0135 N80-13291
Catalyst development for coal liquefaction
   [ EPRI-AP-1084]
                                                25 p0136 N80-13292
 Modified aerospace reliability and quality
   assurance method for wind turbines
[NASA-TM-79284] 25
                                                 25 p0137 N80-13490
Summaries of physical research in the geosciences [DCE/EE-0030] 25 p0137 880-13582
Requirements assessment of wind power plants in
   electric utility systems. Volume 3: [EPRI-ER-978-VOL-3] 25 p
                                                       Appendixes
                                                25 p0139 N80-13628
Assessment of Stirling engine potential in total
   and integrated energy systems
   [ANL/ES-76]
                                                 25 p0140 N80-13636
Integral cell scale-up and performance verification
[EPRI-EM-1134] 25 p0141 M80-13646
Review of the environment effects and benefits of
   selected solar energy technologies [SERI/TP-53-114R] 25
                                                 25 p0141 N80-13649
Solar thermal power systems
[DOE/ET-0078/T1]
                                                 25 p0143 N80-13662
Experimental and analytical OTEC studies at CRNL
   [CONF-790631-1]
                                                 25 p0143 N80-13666
Technology development needs for high temperature
              heat
   process
[SERI/TE-35-047] 25 p0143 N80-136
Experimental and theoretical evaluation of a novel
                                                25 p0143 N80-13669
   concentrating solar energy collection system
   [SAND-79-1053C]
                                                25 p0144 N80-13671
Hot dry rock geothermal energy development program [LA-7807-HDR] 25 p0144 N80-13673
Wind energy innovative systems
[SERI/PR-13-054]
                                                25 p0144 N80-13674
[SENI/FR-13-03-4]
Possil energy program. 1. Hining research and development: Coal preparation and analysis
[IS-4655]
25 p0145 N80-13679
Cogeneration opportunities --- conferences [CONF-7806118] 25 p0145
                                                25 p0145 N80-13681
Photovoltaic concentrator application experiment.

Phase 1: A 150 kW photovoltaic concentrator
   power system for load-center applications with
   feedback into the utility grid [DOE/CS-34267/1]
                                                25 D0145 N80-13688
Status of development, energy and economics
   aspects of alternative technologies --- energy
policy and technology with respect to coal
   .
utilization
   [CONF-790371-1]
                                                25 p0145 N80-13689
OTEC power systems
[CONF-790444-2]
                                                25 p0146 N80-13696
Review of solar energy
  [SERI/TE-54-066]
                                                25 p0146 N80-13699
Environmental development plan: Wind energy
   conversion
   [ DOE/EDP-0030]
                                                25 p0147 N80-13701
Thin film problems and research in energy systems [CONF-761168-SUMM] 25 p0147 N80-13 Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-13
                                                25 p0147 N80-13705
                                                25 p0147 N80-13707
Geothermal energy. Part 3: Technology and general studies, volume 3. Citations from the
   NIIS data base
   [NTIS/PS-79/0816/3]
                                                25 p0148 N80-13717
Geothernal energy, volume 3. Citations from the Engineering Index data base [NTIS/PS-79/0818/9] 25 p0148 N80-1.
                                                25 p0148 N80-13718
Geothermal energy, volume 4.
                                         Citations from the
  Engineering Index data base [NTIS/FS-79/0819/7]
                                                25 p0148 N80-13720
Development of the steam-iron process for hydrogen
  production, 9010
  [FE-2435-32]
                                                25 p0150 N80-14258
The solar in Federal buildings demonstration program [PB-298535/6] 25 p0151 N80-14279
Electric and hybrid vehicles: Commercialization phase 3 planning [DOE/ERD-0004] 25 p0151 N80-1
                              25 p0151 N80-14349
Energy resource development
lume 1: Introduction and
Energy from the West:
  systems report. Volume 1: general social controls
  [PB-299177/6]
                                                25 p0152 N80-14463
```

SUBJECT INDEX ENGINE DESIGN

Energy from the West: Energy resource development	Proceedings of the DOE chemical/hydrogen energy.
systems report. Volume 2: Coal	contractor review systems
[PB-299178/4] 25 p0 152 N80-14464	[CONF-771131] 25 p0164 N80-14572
Energy from the West: Energy resource development systems report. Volume 3: Oil shale	Engineers guide to solar energy [PB-297043/2] 25 p0164 N80-14574
[PB-299179/2] 25 p0152 N80-14465	Wave power systems
Energy from the West: Energy resource development	[PB-299851/6] 25 p0164 N80-14576
systems report. Volume 4: Uranium	West Coast Forum on Appropriate Technology
[PB-299180/0] 25 p0152 N80-14466 Energy from the West: Energy resource development	research in energy and environmental areas [PB-298986/1] 25 p0166 N80-14962
systems report. Volume 6: Geothermal	High temperature electrolysis synthetic fuel
[PB-299182/6] 25 p0152 N80-14468	production
Solar concentrator	[BNL-26331] 25 p0167 N80-15227
[NASA-CASE-MFS-23727-1] 25 p0 153 N80-14473	Project planning document: Bighway vehicle
Hethod for forming a solar array strip [NASA-CASE-NPO-13652-3] 25 p0153 N80-14474	Alternative Fuels Utilization Program (AFUP) [DOE/CS-0093] 25 p0168 N80-15279
A conceptual design study on the application of	Ethanol/gasoline blends as automotive fuels
liquid metal heat transfer technology to the	[CONF-790520-5] 25 p0168 M80-15280
solar thermal power plant	Commercialization strategy report for recovery of
[NASA-CR-162544] 25 p0154 N80-14484 Application of field-modulated generator systems	natural gas from unconventional sources [TID-28848-DRAFT] 25 p0168 N80-15287
to dispersed solar thermal electric generation	Low temperature reaction path for coal liquefaction
[NASA-CR-162536] 25 p0155 N80-14488	[SAND-79-0738C] 25 p0169 N80-15288
solar thermal power systems advanced solar thermal	Report of the Alcohol Puel Policy Review
technology project, advanced subsystems development	[DOE/PE-0012] 25 p0169 N80-15290 Conversion of coal-based methanol to ethylene and
[NASA-CR-162546] 25 p0155 N80-14491	a gaseous fuel
Status of the DOE/NASA critical gas turbine	[PB-301256/4] 25 p0169 N80-15297
research and technology project	Candidate thermal energy storage technologies for
[NASA-TM-79307] 25 p0155 N80-14493 Development and testing of the Junkeeper Control	solar industrial process heat applications [NASA-TM-81380] 25 p0171 N80-15560
Corporation integrated programmable electronic	Novel scheme for making cheap electricity with
controller and hydronics package	nuclear energy
[NASA-TM-78244] 25 p0155 N80-14495	[OCID-18153-REV-1] 25 p0171 N80-15564
Highlights of the energy technology programs [BNL-50959] 25 p0157 N80-14512	SERAPH implementation plans [SERI/RB-34-152] 25 p0172 880-15570
Application of diffusion research to solar energy	[SERI/RB-34-152] 25 p0172 N80-15570 Alternate cycles applied to ocean thermal energy
policy issues	conversion
[SERI/TR-51-194] 25 p0158 H80-14518	[SERI/TP-34-180] 25 p0172 N80-15571
Commercialization strategy report for energy from	Low temperature thermal energy storage: A state-of-the-art survey
urban wastes [TID-28852-DHAFT] 25 p0158 N80-14521	[SERI/RR-54-164] 25 p0172 N80-15583
Fuel cell option	Melting in phase-change thermal storage media
[CONF-7809137-1] 25 p0158 N80-14523	[COO-2993-1] 25 p0173 N80-15584
Lawrence Livermore Laboratory geothermal energy program: A status report on the development of	Energy supply and demand in the short term: 1979 and 1980
the Total-Flow concept	[DOE/EIA-0184/4] 25 p0174 N80-15593
[UCRL-50046-77] 25 p0159 N80-14529	Department of Energy large solar central power
Proceedings of the Thermal Energy Storage in	systems semiannual review
Aguifers Workshop [LBL-8431] 25 p0160 N80-14533	[SAND-79-8508] 25 p0175 N80-15602 All-union scientific and technical conference on
Commercialization strategy report for small wind	use of the earth's heat for the production of
systems	electric power - summary of reports
[TID-28844-DRAFT] 25 p0161 N80-14543 Commercialization strategy report for large wind	[CONF-751270-SUMM] 25 p0176 N80-15615 Overview of flywheel energy storage component
systems	development
[TID-28843-DRAFT] 25 p0161 N80-14544	[SAND-78-1999C] 25 p0176 N80-15623
Commercialization strategy report for solar water	PULSAR: An inductive pulse power source
heating [TID-28856-DRAFT] 25 p0161 N80-14545	[SAND-79-1246C] 25 p0177 N80-15627 Solar/wind handbook for Hawaii: Technical
Thermal energy storage for solar applications: An	applications for Hawaii, the Pacific Basin and
overview	sites worldwide with similar climatic conditions
[SERI/TF-34-089] 25 p0161 N80-14546	[UCRL-15053] 25 p0177 N80-15628
A review of the economics of selected passive and hybrid systems design concepts for solar	Feasibility study for enhancing the development of fusion energy
energy utilization	[EFBI-ER-778-SB] 25 p0178 N80-15642
[SERÍ/TP-61-144] 25 p0161 N80-14547	Water use alternatives for Navajo energy production
Commercializing solar architecture	[LA-UR-79-1598] 25 p0178 N80-15643
[SEBI/TP-62-113] 25 p0161 N80-14548 Pifth Ocean Thermal Energy Conversion Conference,	Energy program at the Johns Hopkins University Applied Physics Laboratory
volume 2, sections 4-5	[PB-310245/7] 25 p0179 %80-15648
[CONF-780236-P2] 25 p0162 N80-14553	Environmental development plan: Flectric Energy
Systems Studies for Central Solar Thermal Electric [CONF-780383] 25 p0162 N80-14558	Systems [DOE/EDP-0038] 25 p0179 N80-15669
Photovoltaic power systems market identification	Development of the Rocky Mountain Energy and
and analysis	Environmental Technology Center: A preliminary
[HCP/T4022-01] 25 p0162 N80-14559	analysis
Electric utility solar energy activities, 1978 [EPRI-ER-966-SR] 25 p0162 N80-14560	[ORAU-158] 25 p0179 N80-15670 ENERGY TRANSFER
System tests and applications photovoltaic program	Experimental studies of interaction and transport
[HCP/T4024-01/15] 25 p0163 N80-14566	processes in laser fusion
Performance of residential solar heating and	25 p0057 A80-17864
cooling system with flat-plate and evacuated tubular collectors: CSU solar house 1	Pluid bed combustion in processing, environmental protection and energy supply
[COO-2577-16] 25 p0163 N80-14568	25 p0072 A80-18735
Process design and economic analysis of the zinc	ENGINE DESIGN
selenide thermochemical hydrogen cycle [UCRL-52546] 25 p0164 N80-14571	Selection of optimal parameters of heat-pipe beat exchanger for a gas turbine engine
firm the first and the first a	25 p0003 A80-10613

Development of an aircraft-derivative gas turbine with high performance and large output	Environmental aspects of alternative fuels utilization for highway vehicles
25 p0003 A80-10823 A pistonless Stirling engine - The traveling wave heat engine	[ UCBL-81841] 25 p0120 180-12201 Comparison of geothermal energy with coal, oil, and natural gas for selected uses
Vehicle emissions control and its effect on engine	[DOE/ET-27139-1] 25 p0123 H80-12558 Environmental aspects of alternative energy
development 25 p0037 A80-14708 Preparing aircraft propulsion for a new era in	technologies for California [UCBL-15002] 25 p0131 M80-12628 Global ecology and man
energy and the environment 25 p0053 A80-17737	25 p0131 H80-12668 Energy and climate: A review with emphasis on
Night storage and backup generation with electrochemical engines study of electric generators for electrochemical engines using	global interactions 25 p0131 N80-12677 Environmental analysis of synthetic liquid fuels
photovoltaic energy conversion [LA-UR-78-1149] 25 p0113 M80-11596	shale oil, coal liquefaction, and biomass production of ethanol
Evaluation of solar Bankine-cycle engine systems [SAND-78-0986] 25 p0125 N80-12571 Closed-cycle bydride engines	[DOE/EV-0044] 25 p0134 B80-13279 Preparation of a coal conversion systems technical
[SAND-78-2228] 25 p0125 N80-12572	data bcok, project 61003 [FE-2286-32] 25 p0134 H80-13281
Lawrence Livermore Laboratory geothermal energy program: A status report on the development of	Review of the environment effects and benefits of selected solar energy technologies
the Total-Flow concept [UCRL-50046-77] 25 p0159 N80-14529	[SERI/TF-53-114B] 25 p0141 M80-13649 Critical review and assessment of environmental
Darrieus wind turbine program at Sandia Laboratories	and safety problems in hydrogen energy systems
[SAND-79-0997C] 25 p0 160 N80-14538 ENRICHBERT	[LA-7820-FR] 25 p0145 N80-13690 Environmental development plan: Wind energy
The jet membrane process for uranium separation	conversion
and enrichment [RE-586] 25 p0091 N80-10329	[DOE/EDP-0030] 25 p0147 M80-13701 Critique of the meteorological and air quality
ENTHALPY	baseline monitoring program for the prototype
Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane	oil shale leaseholds. Part A: Comments on the
[EPRI-ER-1034] 25 p0118 N80-11935	approach taken and recommendations for continuing program. Part E: Comments on the
ENTROPY Second-law analysis of solar-thermal processes	data acquisition and management
25 p0003 A80-10843	[DGE/FV-70031/4-PT-A/B] 25 p0148 #80-13723 Liquefied gaseous fuels safety and environmental
ENVIRONMENT EFFECTS	control assessment program
Coal conversion technologies - Some health and environmental effects	[DOE/EV-0036] - 25 p0151 N80-14266 Energy from the West: Energy resource development
25 p0006 A80-11369 Source, supply and nature of municipal and	systems report. Volume 3: Oil shale
industrial waste as a fuel	[FB-299179/2] 25 p0152 N80-14465 Energy from the West: Energy resource development
25 p0017 A80-11983 Environmental protection in the processing of coal 25 p0030 A80-12943	systems report. Volume 4: Uranium [PB-299180/0] 25 p0152 M80-14466
Ocean thermal energy conversion /OTEC/ - Social and environmental issues	Energy from the West: Energy resource development systems report. Volume 5: Oil and natural gas [PB-299181/8] 25 po152 N80-14467
25 p0049 A80-17135 Climatic impact of alternative energy sources 25 p0050 A80-17140	Surface water quality parameters for monitoring oil shale development [PB-297984/7] 25 p0153 M80-14470
Environmental data for energy technology policy analysis. Volume 1: Summary	Simulation approach for base-line energy-siting analysis
[HCP/EV6119-1] 25 p0098 N80-10629 Resolving environmental issues in energy	[CONP-790459-22] 25 p0157 N80-14511 Hazardous properties and environmental effects of
development: Roles for the Department of Energy and its field offices	materials used in Solar Heating and Cooling (SHAC) technologies: Interim handbook
[RAND/R-2335-DOE] 25 p0099 N80-10636	[DOE/EV-0028] 25 p0163 N80-14565
The impact of LNG spills on the environment: A comparison of dispersion models and experimental	Environmental options for coal use [LA-UR-79-1393] 25 p0165 N80-14584
data	Environmental assessment of the fluidized-bed
[UCBL-81812] 25 p0103 N80-10688 Proposed research planning format for the	combustion of coal: Methodology and initial results
Environmental Assessment Department needs	[FB-298473/0] 25 p0165 N80-14595
and concerns of groups concerned with environment and energy issues	Environmental planning and assessment for highway vehicle use to alcohol fuels
[EPRI-EA-1018] 25 p0103 N80-10692	[CONF-790520-2] 25 p0168 N80-15281
Socioeconomic data requirements for environmental assessment: Coal gasification and liquefaction	Environmental overview of geothermal develorment: The Geysers-Calistoga KGRA. Volume 1: Issues
projects [CONF-780843-5] 25 p0103 N80-10693	and recommendations [UCRL-52496-VOL-1] 25 p0177 M80-15626
Environmental implications for geothermal energy	Identification of environmental control
development [CONF-790445-3] 25 p0103 N80-10694	technologies for geothermal development in the
Health and enviromental effects of coal	Imperial Valley of California [UCRL-52548] 25 p0179 180-15668
gasification and liquefaction technologies: A workshop summary and panel reports	Environmental assessment report: Solvent Refined Coal (SRC) systems
[PB-297618/1] 25 p0104 N80-10701	[PB-300383/7] 25 p0179 880-15676
Two-dimensional transient dispersion and adsorption in porous media	Evaluation of the environmental effects of western surface coal mining, volume 1
[UCRL-81970] 25 p0108 N80-11386	[PB-300375/3] 25 p0179 N80-15681
INEL geothermal environmental program [TREE-1340] 25 p0112 N80-11595	BHVIRONMENT MANAGEMENT
Evaluation of nuclear power plant siting by	Interactive analysis methods for resource mapping 25 p0008 A80-11709
probabilistic assessment of environmental impact [VTT-EN-24] 25 p0118 N80-11891	The scope of environmental risk management
2.22 22 24 103 E	25 p0053 A80-17743

SUBJECT INDEX EVAPORATION

•	
Energy from the West: Energy resource development	BNVIRONMENTAL QUALITY
systems report. Volume 1: Introduction and	Energy conservation and the environment: conflict
general social controls [PB-299177/6] 25 p0152 N80-14463	or complement [LBL-7882] 25 g0098 N80-10621
West Coast Forum on Appropriate Technology	ENVIRONMENTAL SURVEYS
research in energy and environmental areas	The impact of LNG spills on the environment: A
[PB-298986/1] 25 p0 166 N80-14962 ENVIRONMENT MODELS	comparison of dispersion models and experimental data
Insolation modeling overview	[UCRL-81812] 25 p0103 N80-10688
25 p0020 A80-12428	Environmental assessment of the fluidized-bed
Calculation of monthly mean solar radiation for	combustion of coal: Methodology and initial
horizontal and inclined surfaces 25 p0028 A80-12817	results [PB-298473/0] 25 p0165 N80-14595
An optimization model for overall urban energy	ENVIRONMENTS
planning	National environmental/energy workforce
25 p0038 A80-14844 Modeling and simulation. Volume 10 - Proceedings	assessment, phase 3. Air programs bibliography
of the Tenth Annual Pittsburgh Conference,	[PB-298580/2] 25 p0117 H80-11670 EPITAXY
University of Pittsburgh, Pittsburgh, Pa., April	Efficient shallow-homojunction Gals solar cells by
25-27, 1979. Part 3 - Energy and environment	molecular beam epitaxy
ENVIRONMENT POLLUTION 25 p0087 A80-20881	25 p0035 A80-13986 BPOXY BESINS
Environmental protection in the processing of coal	Materials program for fiber composite flywheels
<ul> <li>The utilization or disposal of coal processing</li> </ul>	[UCRL-81724] 25 p0115 N80-11618
residues 25 p0030 A80-12942	RQUIPMENT
Environmental protection in the processing of coal	Department of Energy fossil energy equipment development programs
25 p0030 A80-12943	[CCNP-790405-14] 25 p0112 N80-11590
Pluid bed combustion in processing, environmental	BQUIPMENT SPECIFICATIONS
protection and energy supply 25 p0072 A80-18735	Steam turbines thermcelectric power generation [ANL/CES/TE-78-7] 25 p0095 E80-10502
ENVIRONMENT PROTECTION	Assessment of the applicability of mechanical
A policy-sensitive model of technology assessment	energy storage devices to electric and hybrid
25 p0004 A80-11140 Environmental protection in the processing of coal	vebicles. Volume 1: Executive summary [UCRL-52773-VOL-1] 25 p0166 N80-14973
- The utilization or disposal of coal processing	BROSION 25 PO 100 BOO 14373
residues	The erosion/corrosion of small superalloy turbine
25 p0030 A80-12942 Environmental protection in the processing of coal	rotors operating in the effluent of a PFB coal combustor
25 p0030 A80-12943	25 p0001 A80-10043
Preparing aircraft propulsion for a new era in	ETHYL ALCOHOL
energy and the environment 25 p0053 A80-17737	Ethyl alcohol production and use as a motor fuel Book
Energetics aspects of environmental protection	25 p0050 A80-17241
25 p0072 A80-18733	Net energy analysis of alcohol production from
Fluid bed combustion in processing, environmental	sugarcane
protection and energy supply 25 p0072 A80-18735	25 p0062 A80-18165 Biomass-based alcohol fuels: The near-term
Comprehensive environment, health, and safety	potential for use with gasoline
program report, FY 1978	[HCP/T4101-03] 25 p0093 N80-10393
[DOR/EV-0035] 25 p0098 N80-10630 Summary of major energy legislation of the 95th	Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled
Congress	vehicle
[DOE/TIC-10118] 25 p0100 N80-10644	[CONF-790520-7] 25 p0134 N80-13274
National environmental/energy workshop assessment, phase 3. Energy programs directory of	Fusarium species: Their potential for transforming biomass to ethanol
courses available	[ANL/EES/TH-38] 25 p0151 N80-14271
[PB-298587/7] 25 p0117 N80-11634	Ethanol/gasoline blends as automotive fuels
National energy policy and state coastal programs: A critique of current efforts to balance	[CONF-790520-5] 25 p0168 N80-15280
environmental protection and energy production	The conversion of ethylene glycol with air in
along the coast	alkaline fuel cells
[SAN-0034/263-1] 25 p0141 N80-13643 Electric and hybrid vehicles: Commercialization	25 p0011 A80-11850 Conversion of coal-based methanol to ethylene and
phase 3 planning	a gaseous fuel
[DOE/ERD-0004] 25 p0 151 N80-14349	[PB-301256/4] 25 p0169 N80-15297
Environmental development plan ocean thermal energy conversion	EUROPE The financing problems of Europe's gas industry
[DOE/EDP-0034] 25 p0176 N80-15621	25 p0032 A80-13174
ENVIRORMENT SINULATORS	The European economic community's policy
New concept for a system suitable for solar simulation	concerning natural gas, coal and new sources of energy
25 p0083 A80-19976	25 p0032 A80-13175
ENVIRONMENTAL CONTROL	The R&P programme of the European communities in
Environmental control technology for carbon dioxide [BNL-24999] 25 p0117 N80-11639	the field of hydrogen - Progress and results
ENVIRONMENTAL ENGINEERING	EUTRCTIC ALLOYS 25 p0 032 A80-13195
The scope of environmental risk management	A review cf in situ composites for nonstructural
25 p0053 A80-17743 Development of the Rocky Mountain Energy and	applications 25 p0002 A80-10285
Environmental Technology Center: A preliminary	EVALUATION 25 POUG ASO-10285
analysis	Classification and technical review of dc-ac
[ORAU-158] 25 p0179 N80-15670 BHVIROHMENTAL MONITORING	inverters for use in photovoltaic power systems [COO-4094-25] 25 p0137 N80-13377
Western energy sulfate/nitrate monitoring network	EVAPORATION
[PB-299238/6] 25 p0180 N80-15685	Performance of heat pumps at elevated evaporating
	temperatures - With application to solar input [ASME PAPER 79-WA/SOL-19] 25 p0069 A80-18587

EXHAUST DIPFOSERS SUBJECT INDEX

Electric power generation and LNG evaporation with	PARMLANDS
the aid of gas turbines within a closed-cycle	Growing energy: Land for biomass farms [PB-296650/5] 25 p0094 N80-10400
process [AED-CONF-78-155-010] 25 p0121 N80-12291 EXHAUST DIFFUSERS	PATIGUE (MATERIALS)  Haterials testing for central receiver
Effect of velocity overshoot on the performance of	solar-thermal power systems
magnetohydrodynamic subsonic diffusers [NASA-TM-79305] 25 p0166 N80-14922	[TID-29443] 25 p0146 B80-13695 PATIGUE TESTS
BXHAUST EMISSION	Materials testing for central receiver
Unleaded gasoline shortages and fuel switching - The potential impact in Southern California	solar-thermal power systems [DOE/TIC-10103] 25 p0096 B80-10606
25 p0004 A80-11019	PEASIBILITY ANALYSIS
Measurement of gaseous hydrogen chloride emissions from municipal refuse energy recovery systems in	Hydrogen - A means of integrating competing technology into a unified energy system
the United States	25 p0014 A80-11955
25 p0019 A80-12128 Driving cycle comparisons of energy economies and	The prospect for anthracite as a national energy resource
emissions from an alcohol and gasoline fueled	25 p0014 A80-11960
vehicle [CONF-790520-7] 25 p0134 N80-13274	Industrial solar total energy systems 25 p0017 A80-11987
The 50,000 mile methanol/gasoline blend fleet study fuel efficiency and exhaust emissions	Processing of coal, oil sand and heavy oil in situ by electric and magnetic fields
[CONF-790520-6] 25 p0134 N80-13275	25 p0019 A80-12310
Low NO(x) heavy fuel combustor program [NASA-TM-79313] 25 p0138 N80-13624	Techno-economic feasibility analysis of solar cells with and without concentrators for rural
Ambient temperature, fuel economy, emissions, and	lighting
trip length [PB-298847/5] 25 p0166 N80-14976	25 p0026 A80-12773 Gasohol - Does it or doesn't it produce positive
[PB-298847/5] 25 p0166 N80-14976 Environmental planning and assessment for highway	net energy
vehicle use to alcohol fuels	25 p0034 A80-13863
[CONF-790520-2] 25 p0168 N80-15281 RXHAUST GASES	Solar enhanced oil recovery - An assessment of economic feasibility
Environmental protection in the processing of coal	25 p0078 A80-19472
25 p0030 A80-12943  Vehicle emissions control and its effect on engine	Sugar crops as a source of fuels. Volume 1: Agricultural research
development	[TID-29400/1] 25 p0093 N80-10395
25 p0037 A80-14708	Evaluation of feasibility of prestressed concrete
Automobile transportation and the environment 25 p0072 A80-18734	for use in wind turbine blades [NASA-CR-159725] 25 p0170 N80-15553
Experiences with the practical use of an Andersen	Peasibility study for enhancing the development of
cascade impactor in the exhaust gas of various industrial sites	fusion energy [EPRI-ER-778-SR] 25 p0178 N80-15642
25 p0074 A80-18861	FEDERAL BUDGETS
Effects of inspection and maintenance programs on fuel economy	Role of the government in the development of solar
[PB-297583/7] 25 p0170 N80-15420	energy [SERI/TP-52-138] 25 p0 178 N80-15639
EPA utility FGD (Flue Gas Desulfurization) survey:	FRED SYSTEMS
December 1978 - January 1979 electric power plants	Continuous coal processing method and means [NASA-CASE-NPO-13758-2] 25 p0092 N80-10377
[PB-299399/6] 25 p0179 N80-15682	FREDBACK CONTROL
Nonequilibrium thermodynamics of fuel cells - Heat	Optimization of a solar heating system with integral compensation
release mechanisms and voltage	25 p0089 A80-20894
25 p0 084 &80-20274 EXPLORATION	PERMENTATION  Methane fermentation of aquatic biomass
Geothermal exploration methods and results:	25 p0043 A80-16148
Inland states [LA-UR-79-665] 25 p0108 N80-11543	Sugar crops as a source of fuels. Volume 1: Agricultural research
Development of mining guidance and control systems	[TID-29400/1] 25 p0093 N80-10395
[NASA-TM-78226] 25 p0137 N80-13601 EXPLOSIONS	FERRIC IONS Study of photoghomical processes in the
Effects of metallurgical microstructure of	Study of photochemical processes in the ferrous-thionine system photogalvanic effect
armatures on compressed magnetic field generators	in dye redox systems for chemical energy
[SAND-79-0890C] 25 p0137 N80-13375 EXTRATERESTRIAL RESOURCES	conversion 25 p0027 A80-12783
Impacts of satellite power system technology	FERROUS METALS
25 p0048 A80-17132' EXTRUDING	The basics of magnetic separation as applied to municipal solid waste reclamation plants
Continuous coal processing method and means	25 p0074 A80-18871
[NASA-CASE-NPO-13758-2] 25 p0092 N80-10377	FIBER OPTICS A review of in situ composites for nonstructural
F	applications
PABRICATION	25 p0002 A80-10285 FIELD COILS
Silicon solar cell process development,	Constant current and constant voltage excitation
fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561	of large coils by flywheel-generator-converter for fusion reactors
Solar parabolic trough forming process	25 p0080 A80-19624
[ALO-4158-1] 25 p0116 N80-11626 Method for forming a solar array strip	Developments for the high voltage test of pulsed superconducting coils used in tokamak switches
[NASA-CASE-NPO-13652-3] 25 p0 153 N80-14474	25 p0081 A80-19655
PAILURE MODES Failure mechanisms of vented nickel-cadmium cells	FILM THICKNESS
in overcharge	Effect of thin oxide layer on the current voltage relations of Schottky barrier solar cells
25 p0010 A80-11840	25 p0026 a80-12772
PARM CROPS Growing energy: Land for biomass farms	
[PB-296650/5] 25 p0094 N80-10400	

FILTRATION		PLOES	
Energy conservation through point s	source recycle	EPA utility FGD (Flue Gas Desulfuriz	zation) survev:
with high temperature hyperfiltra textile industry	ation	December 1978 - January 1979 e	electric power
	25 p0180 N80-15688	plants [PE-299399/6] 25	5 p0179 N80-15682
PINANCE	_	PLUID DYNAMICS	<del>-</del>
The financing problems of Europe's	gas industry 25 p0032 A80-13174	Fluid dynamic aspects of wind energy	/ conversion
FINANCIAL HANAGRHENT	-	[AGARE-AG-243] 25 Fluid Dynamics of Porous Media in En	5 p0103 N80-10683
Determination of the optimal solar	investment	Applications, volume 2	.0191
decision criterion	25 p0021 A80-12437	[VKI-LFC-SER-1979-4-VOL-2] 25 FLUID FILTERS	5 p0121 N80-12346
Analysis of resource pricing for ge	eothermal .	Hot gas cleanup	
electric power production	ns -0000 100 2000	[ICIIS/TR-03] 25	5 p0117 N80-11647
PINITE DIPPERENCE THEORY	25 p0088 A80-20889	FLOID FLOW  Heat exchange fluids and techniques	Rook
Feasible thermophysical conditions		25	5 p0041 A80-15659
receiver tubes in solar power sta [ASME PAPER 79-WA/HT-37] 2		Noniterative solution of heat transf	er equation of
PINITE BLEMBET HETHOD	25 p0071 A80-18627	fluid flow in solar collector [ASME PAPER 79-WA/SOL-24] 25	5 p0068 A80-18577
Simulation of LNG vapor spread and	dispersion by	PLUID INJECTION	
finite element methods [UCRL-82441] 2	25 p0168 N80-15282	Bell Creek residual oil saturation t [BEIC-2180-4] 25	
PINS	_	PLUID PRESSURE	5 p0108 N80-11546
Using a fin with a parabolic concer		Transient-pressure analysis in geoth	
PISSIONABLE MATERIALS	25 p0CC4 A80-10847	reservoirs with an immobile vapori phase	zing liquid.
Fuel production characteristics of	fusion hybrid	<u>=</u>	p0076 A80-19209
reactors	DE -0050 100 17000	Tidal pressure response as a reservo	
FLAME PROPAGATION	25 p0059 A80-17888	tool [UCRL-83012] 25	5 p0141 B80-13647
Flame propagation through unconfine		PLUID TRANSMISSION LINES	P0141 B00 13047
hemispherical stratified gaseous	mixtures 25 p0008 A80-11816	Energy analysis of the basic materia	
An in-situ optical particle sizing		electric power transmission system [HCP/T5043-01] 25	s p0157 N80-14510
for fuel droplets	25 -0065 100 40050	PLUIDIZED BED PROCESSORS	•
[AIAA PAPER 80-0020] A single coal particle gasification	25 p0062 A80-18240 n model	Experimental techniques and mathemat the study of waste pyrolysis and g	
2	25 p0088 A80-20884		p0001 A80-10028
PLAT PLATES A high performance porous flat-plat	o color collector	The erosion/corrosion of small super	alloy turbine
	25 p0021 A80-12438	rotors operating in the effluent o combustor	f a PPB coal
Transient rise of plate temperature		25	p0001 A80-10043
collectors 2	25 p0023 A80-12746	Combustion of anthracite culm in a f boiler	luidized bed
Plat-plate solar collector material			F0014 A80-11959
	25 p0035 A80-14409	170 MW pressurized fluidized bed com	
Noniterative solution of heat trans fluid flow in solar collector	ster equation or	electric plant	p0014 A80-11962
[ASME PAPER 79-WA/SOL-24] 2	5 p0068 A80-18577	Development of fluidised bed combust	ion in the
A comparison of test results for fl water-heating solar collectors us		United Kingdom	-001F 300 11063
ASHRAE procedures	and the DDL and	Economics/reliability trade-offs in	p0015 A80-11963 materials for
[ASME PAPER 79-WA/SOL-4] 2	15 p0069 A80-18585	various coal conversion and utiliz	ation processes
Visualization of natural convection solar collectors	in flat plate	25 The use of oil shale for SO2 emissio	p0016 A80-11975
	5 p0153 N80-14476	atmospheric-pressure fluidized-bed	coal combustors
Thermal performance evaluation of t SH-11 (liquid) solar collector	he Suncatcher	25	p0064 A80-18505
[NASA-CE-161253] 2	5 p0156 N80-14497	Fluid bed combustion in processing, protection and energy supply	enATEONMEDIGIT
PLIGHT PATHS	: 51	25	p0072 180-18735
Fuel minimal take—off path of jet l aircraft, log no. C3558	III VIUL	Gasification of solid waste in a flu- reactor with circulating sand	1d1zed bed
2	5 p0105 N80-11066		p0074 A80-18868
FLIGHT TESTS Preliminary test results of a fligh	t management	The calculation of carbon load and a	
algorithm for fuel conservative d		of oxygen concentration in the bed fluidized combustor	or a
time based metered traffic enviro		25	p0077 A80-19421
flight tests of an algorithm to m consumption of aircraft based on		Investigations of isotope separation Ti-fluidized bed	effects of a
[NASA-TM-80194] 2	5 p0150 N80-14114		p0082 A80-19669
FLIGHT TIME Preliminary test results of a fligh	t management	Computer modeling of coal gasification	on reactors
algorithm for fuel conservative d		Continuous coal processing method and	p0087 A80-20882 d means
time based metered traffic enviro	nment	[ NASA-CASE-NPO-13758-2] 25	p0092 N80-10377
flight tests of an algorithm to m consumption of aircraft based on		Fluidized-bed combustion of high sulf [METC/RI-79/4] 25	
[NASA-TM-80194] 2	5 p0150 N80-14114	Combustion of low grade coal	p0093 N80-10386
PLOW VISUALIZATION Visualization of natural convection	in flat mista	[ICTIS/TR-02] 25	p0106 N80-11179
Visualization of natural convection solar collectors	In riat brate	Hot gas cleanup [ICTIS/TR-03] 25	p0117 N80-11647
2	5 p0153 N80-14476	Regenerative process for desulfuriza	tion of high
PLOWMETERS Heat flow meters for solar system p	erformance	temperature combustion and fuel gas [BNL-50944] 25	
monitoring		Gas generator research and developmen	p0134 N80-13277 nt: BI-GAS
2	5 p0022 A80-12608	process	
		[FE-1207-62] 25	p0135 N80-13288

Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial		RORESTS Supply, harvesting and nature of forest biomass as
results [PB-298473/0] 25 p0165 N6		a fuel 25 p0017 A80-11982
PLUOBESCENCE A comprehensive model for photovoltage genera at metal electrodes in contact with sclutic fluorescent dyes	ation ons of	SAMICS: Input data preparation Solar Array Manufacturing Industry Costing Standards [NASA-CR-162421] 25 p0110 N80-11570
25 p0004 At Laboratory evaluation of two laser fluorosens systems		POSSIL FUELS Lignite fuel and power-plant availability 25 p0004 A80-10944
PLUX PUMPS 25 p0031 A	80-12964	The prospect for anthracite as a national energy resource
The 50kA flux pump for the superconducting transmission line test bed		25 p0014 A80-11960 Economic comparisons of solar and fossil total
[LA-6953-MS] 25 p0094 NO	80-10443	energy systems for industrial applications [ASMF PAPER 79-WA/TS-6] 25 p0065 A80-18552
Flywheels for energy storage  25 p0019 At Whirling response and stability of flexibly	80-12166	The distribution of sulfur and organic matter in various fractions of peat - Origins of sulfur in coal
mounted, ring-type flywheel systems [ASME PAPER 79-DET-71] Constant current and constant voltage excitat		25 p0074 A80-18833  Department of Energy fossil energy equipment development programs
of large coils by flywheel-generator-conver		[CONF-790405-14] 25 p0112 M80-11590 Environmental control technology for carbon dioxide
25 p0080 M Plywheel energy storage and conversion system		[BNL-24999] 25 p0117 N80-11639 Characterization of coal-derived liquids and other
solar photovoltaic applications [COO-4094-31] 25 p0100 N		fossil fuel related materials employing mass spectrometry. Mass spectrometry and
Regenerative flywheel energy storage system [UCRL-13982] 25 p0112 N	80-11594	fossil-energy conversion technology: A review [FE-2537-7] 25 p0120 N80-12198
Materials program for fiber composite flywhee [UCRL-81724] 25 p0115 No		Low NC(x) heavy fuel combustor program [NASA-TH-79313] 25 p0138 N80-13624
Lateral and tilt whirl modes of flexibly moun flywheel systems for energy storage	nted	Fossil energy program. 1. Mining research and development: Coal preparation and analysis
[SAND-78-7070] 25 p0115 Not whirling response and stability of flexibly	80-11622	[IS-4655] 25 p0145 N80-13679 Fossil energy program, 1. Mining research and
mounted, ring-type flywheel systems [SAND-78-7073] 25 p0116 N		development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702
The USAF Academy flywheel-electric car prelimental design report		Federal leasing and outer continental shelf energy production goals
[AD-A071242] 25 p0123 N Mechanical energy storage technology develop	ment P	[DOE/RA-0037] 25 p0178 N80-15640 POUNDATIONS
for electric and hybrid vehicle application [UCRL-81786] Research on the dynamics of band-supported		The 10MW(e) solar thermal central receiver pilot plant: Heliostat foundation and interface structure investigation
flywheel systems [SAND-78-7074] 25 p0128 N	80-12597	[SAND-78-8180] 25 p0097 N80-10612 Analysis of field test results for
Impact of flywheel-transmissions on automobi performance: A logical basis for evaluation	le	single-axis-tracking solar collector foundations [SAND-79-7023] 25 p0173 N80-15586
[UCRL-52758] 25 p0137 N Recent spin test of two composite wagon whee	80-13480 P	PREE CONVECTION  A theoretical study of laminar free convection in
flywheels [SAND-79-1669C] 25 p0140 N		1-D solar induced flows 25 p0005 A80-11337
Plywheel energy storage interface unit for photowoltaic applications	P	PREE VIBRATION Whirling response and stability of flexibly
[COO-4094-44] 25 p0175 N Laminated disk flywheel program	80-15609	mounted, ring-type flywheel systems [ASME PAPER 79-DET-71] 25 p0041 A80-15729
[UCRL-81772] 25 p0175 Note Critical speeds and natural frequencies of	80-15612 F	PREON Prime mover for solar power plant
rim-type composite-material flywheels [SAND-78-7049] 25 p0176 N	80-15622 <b>F</b>	PREQUENCY RESPONSE 25 p0024 A80-12752
Overview of flywheel energy storage componen development		Theoretical analysis of multi-cell, high efficiency broad spectral sensitivity solar cells
[SAND-78-199C] 25 p0176 N Sandia composite-rim flywheel development [SAND-78-1865C] 25 p0177 N	F	PREQUENCY STABILITY
[SAND-78-1865C] 25 p0177 N: Plywheel energy storage and conversion systements of the photovoltaic applications		Area load-frequency control software package for electric power system operation 25 p0022 A80-12735
[COO-4094-48] 25 p0178 N Energy program at the Johns Hopkins Universi		FRESHEL LEWSES High temperature solar collector with optimal
Applied Physics Laboratory [PB-310245/7] 25 p0179 N	-	concentration - Non-focusing Presnel lens with secondary concentrator
FOAMING Foam solar sea power: A physical investigat		PRESERL REFLECTORS 25 p0060 A80-18127
PORECASTING 25 p0122 N		Superheated steam generation in a Fresnel lens concentrating collector
Forecasting automobile fleet fuel efficiency 25 p0002 A	80-10324 P	[ASME PAPER 79-WA/SOL-21] 25 p0067 A80-18567 PRICTION
Energy supply and demand in the midterm: 19 1990, and 1995		Ranking tires using a transient speed-time cycle [PB-297756/9] 25 p0108 M80-11487
[DOB/EIA-0102/52] 25 p0097 N FOREST MANAGEMENT Energy plantation for coromandel littoral		FUBL CAPSULES Ablation of solid hydrogen in a plasma 25 p0050 A80-17218
growing plant materials for fuel value in 25 p0023 A	India F	FUEL CELLS Development of silver-hydrogen cells
		25 p0010 A80-11843 Development of silver-hydrogen cells
		25 p0010 A80-11844

mba accompanies of the control of th	
The conversion of ethylene glycol with air in alkaline fuel cells	Development of combustion data to utilize low Btu gases as industrial process fuels. Project
25 p0011 A80-11850 The performance of molten-carbonate fuel cells	61004 special report no. 4: Bigh-forward-momentum burner
25 p0011 A80-11851 Utility fuel cells for Sweden	[FE-2489-33] 25 p0093 N80-10390 Development of gas turbine fuels and combustion;
25 p0011 A80-11852 Phosphoric acid fuel-cell electrocatalysts from	An overview [CONF-790337-4] 25 m0093 N80-10391
pyropolymer ceramic composites 25 p0012 A80-11861	Characterization and combustion of SRC 2 fuel oil [EPRI-FF-1028] 25 p0119 N80-12192
An indirect ammonia-air fuel system 25 p0013 A80-11868	Status of the DOE/NASA critical gas turbine research and technology project
The reality of on-site fuel cells 25 p0016 A80-11973	[NASA-TM-79307] 25 p0155 N80-14493 FUEL CONSUMPTION
Commercial applications of molten carbonate fuel cell systems	An engine fuel chemistry solution to the problem of jet fuel supplies
Fuel cell sesquicentennial 25 p0016 A80-11974	25 p0001 A80-10199 Porecasting automobile fleet fuel efficiency
25 p0033 A80-13223 Application of solar and fuel cell technology to industrial users	25 p0002 A80-10324 The role of technology as air transportation faces the fuel situation
25 p0037 A80-14707	25 p0037 #80-14700
The methanol-air fuel cell - A selective review of methanol oxidation mechanisms at platinum electrodes in acid electrolytes	Reduction of aerodynamic drag and fuel consumption for tractor-trailer vehicles
25 p0042 A80-16146 A performance and current distribution model for scaled-up molten carbonate fuel cells	25 p0046 A80-16948 Preparing aircraft propulsion for a new era in energy and the environment
25 p0062 A80-18213 Nonequilibrium thermodynamics of fuel cells - Heat	25 p0053 A80-17737 Aircraft Energy Efficiency (ACEE) status report 25 p0091 N80-10206
release mechanisms and voltage 25 p0084 A80-20274	Fuel minimal take-off path of jet lift VTOL aircraft, log no. C3558
Technology development for phosphoric acid fuel cell powerplant, phase 2	25 p0105 N80-11066
[NASA-CR-159705] 25 p0096 N80-10603	The 50,000 mile methanol/gasoline blend fleet study fuel efficiency and exhaust emissions
Influence of electrolyte composition on electrode kinetics in the molten carbonate fuel cell	[CONP-790520-6] 25 p0134 N80-13275 Current U. S. petroleum situation and short-term
[CONF-781063-2] 25 p0115 N80-11615 Anton permselective membrane	supply/demand outlook
[NASA-CR-159599] 25 p0122 N80-12551	[DCE/EIA-0184/5] 25 p0138 N80-13607 Preliminary test results of a flight management
On the properties of a fuel cell electrolyte [AD-A072864] 25 p0123 N80-12554	algorithm for fuel conservative descents in a time based metered traffic environment
Commercial application of molten carbonat∈ fuel cell system	flight tests of an algorithm to minimize fuel
[CONF-790213-4] 25 p0123 N80-12557	consumption of aircraft based on flight time [NASA-TM-80194] 25 p0150 880-14114
Distribution and movement of electrolyte in fuel cells and batteries	US energy flow in 1978 25 p0 158 N80-14517
25 p0138 N80-13619 Integral cell scale-up and performance verification	Evaluation of fuel resources and requirements for the magnetic fusion energy program
[EPRI-EM-1134] 25 p0141 N80-13646 Solid electrolyte fuel cell for electric power	[MLM-2419] 25 p0164 N80-14570
generation nonaqueous electrolyte fuel cells	Ambient temperature, fuel economy, emissions, and trip length
development for electric power plants [BNL-26238] 25 p0158 N80-14522	[PB-298847/5] 25 p0166 N80-14976 Fuel utilization in residences
Fuel cell option [CONF-7809137-1] 25 p0158 N80-14523	[EPRI-EA-894] 25 p0175 N80-15604
Applications of fuel cells in transportation	FUEL CORROSION  Combustion of low grade coal
[LA-UR-79-628] 25 p0159 N80-14526 Prediction of current distribution in a molten carbonate fuel cell	[ICTIS/TR-02] 25 p0106 N80-11179 FUEL INJECTION
[CONF-781063-1] 25 p0 175 N80-15613	Mach 3 hydrogen external/base burning [AIAA PAPER 80-0280] 25 p0077 A80-19311
FUBL COMBUSTION Minimum ignition energies and quenching distances	FURL OILS SRC solids - Boiler fuel and building block
of methanol blends 25 p0004 A80-11331	Solvent Refined Coal
Development of fluidised bed combustion in the United Kingdom	25 p0015 A80-11967 SRC solids - A preferred compliance boiler fuel Solvent Refined Coal
25 p0015 A80-11963 MHD boundary layer of the seeded combustion gas near cold electrodes	25 p0015 A80-11968 Commercial applications of molten carbonate fuel cell systems
25 p0047 A80-17004 Results of duct area ratio changes in the NASA Lewis H2-O2 combustion MED experiment	25 p0016 A80-11974 Pollution aspects of oilfired and coalfired boilers
[AIAA PAPER 80-0023] 25 p0063 A80-18243	25 p0074 A80-18849 Characterization and combustion of SBC 2 fuel oil
A chromatographic reak profiling technique for interpretation and analysis of combustion processes	[FPRI-FF-1028] 25 p0119 N80-12192 Fuel choice and aggregate energy demand in the commercial sector electricity, natural gas,
[AIAA PAPER 80-0284] 25 p0063 A80-18291 Pluid bed combustion in processing, environmental protection and energy supply	and fuel oil [OENL/CCN-27] 25 p0126 N80-12580
25 p0072 A80-18735	FUEL SPRAYS An in-situ optical particle sizing technique
Combustion and turbulence characteristics of cyclone combustors for burning low calorific	for fuel droplets [AIAA PAPER 80-0020] 25 p0062 A80-18240
value fuels [AIAA PAPER 80-0075] 25 p0076 A80-19275	FURL SYSTEMS Combustion of low grade coal
The calculation of carbon load and axial profiles of oxygen concentration in the bed of a fluidized combustor	[ICTIS/TR-02] 25 p0106 N80-11179
25 p0077 A80-19421	

FURL TESTS	Puel production characteristics of fusion hybrid
Project planning document: Bighway vehicle Alternative Fuels Utilization Program (AFUP)	reactors 25 p0059 A80-17888
[DOF/CS-0093] 25 p0168 N80-15279 FUELS	_
Status of alcohol fuels utilization technology for	G
stationary gas turbines [HCP/M2098-03] 25 p0135 N80-13283	GALLIUM ARSENIDES GaAs-electrolyte photovoltaic cells
FUNGI Fusarium species: Their potential for	25 p0026 A80-12774 Efficient shallow-homojunction GaAs solar cells by
transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271	molecular beam epitaxy
PURNACES	25 p0035 A80-13986 Calculated and measured efficiencies of thin-film
Emissions assessment of conventional stationary combustion systems. Volume 1: Gas- and oil-fired residential heating sources	shallow-homojunction GaAs solar cells on Ge substrates
[PB-298494/6] 25 p0131 N80-12637	25 p0039 A80-15141 A theoretical evaluation and optimization of the
PUSION (MELTING) An incongruent heat-of-fusion system - CaCl2-6H2O	radiation resistance of gallium arsenide solar-cell structures
<ul> <li>made congruent through modification of the chemical composition of the system during</li> </ul>	25 p0046 A80-16794 Preparation and properties of
melting 25 p0029 A80-12823	Au-/n/AlxGa1-xAs-/n/GaAs Schottky barrier solar
FUSION REACTORS	cells 25 p0086 A80-20716
Power supply requirements for a tokamak fusion reactor	Electron radiation damage of (AlGa) As-GaAs solar cells
25 p0003 A80-10474 An overview of Controlled Thermonuclear Research	[NASA-CE-162425] 25 p0110 N80-11564 Analysis of GaAs and Si solar cell arrays for
Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory	earth orbital and orbit transfer missions [NASA-TM-81383] 25 p0167 N80-15204
25 p0022 A80-12628 Laser fusion - Energy application perspectives	GAS AWALYSIS Rapid devolatilization and partial gasification of
25 p003C A80-12883	coal in an entrained dust reactor
Review of tokamak experiments 25 p0034 A80-13342	25 r0002 A80-10226 Measurement of gaseous hydrogen chloride emissions
Drift wave stability and transport theory in fusion systems	from municipal refuse energy recovery systems in the United States
25 p0056 A80-17846 The Elmo Bumpy Torus /EBT/ reactor	25 p0019 A80-12128 Laboratory coal gasifier facility
25 p0058 A80-17883 Fusion technology 1978; Proceedings of the Tenth	[UCRL-82602] 25 p0106 N80-11245 GAS CHROMATOGRAPHY
Symposium, Padua, Italy, September 4-9, 1978. Volumes 1 & 2	A chromatographic peak profiling technique for interpretation and analysis of combustion
25 p0078 A80-19581 Optimization of stabilized imploding liner fusion reactors	processes [AIAA PAPER 80-0284] 25 p0063 A80-18291 GAS COMPOSITION
25 p0079 A80-19593	Effect of off-design operation of MHD generators
The effect of classical and anomalous transport on the performance of Tandem Mirror reactors	on NO/x/ chemical kinetics [AIAA PAPER 80-0254] 25 p0077 A80-19310
25 p0079 A80-19596 Refueling by means of pellets - Ablation rate and	GAS DISCHARGES  CO2 electric discharge lasers - Fresent status and
<pre>injection velocity considerations effects on plasma confinement in tokamak</pre>	future applications 25 p0039 A80-14960
25 p0080 A80-19611 Electrical power system to TPTR poloidal coils	GAS DYNAMICS Fixed-bed gasifier dynamic model for IGCCP control
25 p0080 &80-19620 Neutronics in the toroidal belt-geometry of a	study Integrated Gasification Combined Cycle Plant
screw pinch reactor 25 p0081 A80-19657	25 p0088 A80-20883 The jet membrane process for uranium separation
Spatial and depth distribution of deuterium,	and enrichment
oxygen, and limiter materials on the liner of TFR 400	[RE-586] 25 p0091 N80-10329 GAS EVOLUTION
25 p0062 A80-19682 Status of the JET project Joint European Torus	Failure mechanisms of vented nickel-cadmium cells in overcharge
25 p0082 A80-19708 JT-60 project tokamak fusion reactor design	GAS EXPLOSIONS 25 p0010 A80-11840
analysis	Optimization of neutron yield in conical system at explosion-induced compression
Economics of fusion driven symbiotic energy systems	25 p0007 A80-11545
[CONF-790602-50] 25 p0128 N80-12602 Conceptual design of a Demonstration Tokamak	GAS FLOW Selection of optimal parameters of heat-pipe heat
Hybrid Beactor (DTHR) [WFPS-TME-107] 25 p0132 N80-12898	exchanger for a gas turbine engine 25 p0003 A80-10613
Synfuel (hydrogen) production from fusion power [LA-UR-79-1115] 25 p0136 N80-13296	MHD boundary layer of the seeded combustion gas near cold electrodes
Fusion power program [ANL/FPP-78-4] 25 p0149 N80-13941	25 p0047 A80-17004 GAS GENERATORS
Peasibility study for enhancing the development of fusion energy	Hydrogen and oxygen from water. II - Some considerations in the reduction of the idea to
[EPRI-ER-778-SR] 25 p0178 N80-15642 Fusion: A possible option for solving long-term	practice 25 p0078 A80-19473
energy problems	GAS HEATING
FUSION-FISSION HYBRID REACTORS	Investigation of aerodynamic drag of solar air heaters
Survey of mirror machine reactors 25 p0046 A80-16752	GAS INJECTION 25 p0044 A80-16631
Tandem mirror reactors for controlled fusion 25 p0059 A80-17887	Influence of wall-jet gas injection on liquid-metal MHD generator performance 25 p0047 A80-16996

SUBJECT INDEX GASIFICATION

Oil recovery by carbon dioxide injection West	Electric power generation and LNG evaporation with
Virginia	the aid of gas turbines within a closed-cycle
[ORO-5301-34] 25 p0108 N80-11545	process
GAS IONIZATION	[AED-CONF-78-155-010] 25 p0121 N80-12291
Dynamic suppression of ionization instability	Status of alcohol fuels utilization technology for
in MHD devices of Faraday and Hall types	stationary gas turbines
25 p0043 A80-16484	[HCP/M2098-03] 25 p0135 N80-13283
Studies on plasma formation, relaxation and heating in a reversed-field pinch	Low NO(x) heavy fuel combustor program [NASA-TM-79313] 25 p0138 N80-13624
25 p0054 A80-17811	[NASA-TH-79313] 25 p0138 N80-13624 Status of the DOE/NASA critical gas turbine
GAS JETS	research and technology project
Influence of wall-jet gas injection on	[NASA-TH-79307] 25 p0155 N80-14493
liquid-metal MHD generator performance	GAS-LIQUID INTERACTIONS
25 p0047 A80-16996	Preparation of a coal conversion systems technical
The jet membrane process for uranium separation	data book, project 61003
and enrichment	[FE-2286-32] 25 p0134 N80-13281
[RE-586] 25 p0091 N80-10329 GAS MIXTORES	GAS-HETAL INTERACTIONS
Optimization of argon admixture in deuterium	<pre>Ion-stimulated sorption of nitrogen on a   continuously deposited titanium film</pre>
fusion with non-stationary action of plane shock	25 p0051 A80-17252
waves	GAS-SOLID INTERACTIONS
25 p0007 A80-11546	Helium penetration in evacuated solar collectors -
Flame propagation through unconfined and confined	Theory and effect on their performance
hemispherical stratified gaseous mixtures	[ASME PAPER 79-WA/SOL-17] 25 p0066 A80-18563
25 p0008 A80-11816	GASEOUS DIFFUSION
Development of combustion data to utilize low Btu	Simulation of LNG wapor spread and dispersion by
gases as industrial process fuels. Project 61004 special report no. 4:	finite element methods
High-forward-momentum burner	[UCBL-82441] 25 p0168 N80-15282 GASEOUS FUELS
[PE-2489-33] 25 p0093 N80-10390	The performance of molten-carbonate fuel cells
GAS PIPES	25 p0011 A80-11851
Peasible thermophysical conditions for gas	Gas recovery from unconventional sources
receiver tubes in solar power stations	25 p0014 A80-11958
[ASHE PAPER 79-WA/HT-37] 25 p0071 A80-18627	The role of coal gasification and liquefaction in
GAS PRESSORE	improving the efficiency of energy use -
Analysis of reservoir pressure and decline curves in Serrazzano zone, Larderello geothermal field	Comparative end use efficiency of the use of
25 p0075 A80-19204	coal: Substitute natural gas and other gases versus electric power production
GAS RECOVERY	25 p0030 A80-12941
Methane recovery from sanitary landfills; gas	The financing problems of Europe's gas industry
recovery system installation and testing	25 p0032 A80-13174
[PB-296622/4] 25 p0107 N80-11254	Properties of gases and petroleum liquids derived
GAS TURBINE ENGINES	from terrestrial kerogen at various maturation
Selection of optimal parameters of heat-pipe heat	levels
exchanger for a gas turbine engine	levels 25 p0073 A8C-18832
exchanger for a gas turbine engine 25 p0003 A80-10613	levels 25 p0073 A80-18832 Combustion and turbulence characteristics of
exchanger for a gas turbine engine	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of  cyclone combustors for burning low calorific
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific walue fuels
exchanger for a gas turbine engine 25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [ATAA PAPER 80-0302] 25 p0064 A80-18303	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels [AIAA PAPEE 80-0075]  25 p0076 A80-19275  The controlling production mechanism of methane gas from coalbeds
exchanger for a gas turbine engine 25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303 Study of heat-pipe heat exchanger in the small gas turbine engine system	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental
exchanger for a gas turbine engine 25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [AIAA PAPEE 80-0075]  25 p0076 A80-19275  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program
exchanger for a gas turbine engine 25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022  Selection of optimal parameters of heat-pipe heat	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCZ/ET-0036]  25 p0151 N80-14266
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303 Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  25 p0151 N80-14266  GASIPICATION
exchanger for a gas turbine engine 25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022  Selection of optimal parameters of heat-pipe heat	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [AIAA PAPEE 80-0075]  25 p0076 A80-19275  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  25 p0151 N80-14266  GASIFICATION  Experimental techniques and mathematical models in
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303 Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p0091 N80-10068 Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [AIAA PAPEE 80-0075]  25 p0076 A80-19275  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  25 p0151 N80-14266  GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028
exchanger for a gas turbine engine 25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022  Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  Development of gas turbine fuels and combustion;	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  25 p0151 N80-14266  GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028  Gasification of solid waste in a fluidized bed
exchanger for a gas turbine engine 25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022  Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  Development of gas turbine fuels and combustion; An overview	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  CASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028  Gasification of solid waste in a fluidized red reactor with circulating sand
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines [ATAA PAPER 80-0302] 25 p0004 A80-18303 Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p00091 N80-10022 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p00091 N80-10068 Dynamics of diesel fuel combustion in turbulent flow 25 p00091 N80-10074 Development of gas turbine fuels and combustion; An overview [CONF-790337-4] 25 p0003 N80-10391	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  25 p0076 A80-19275  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  25 p0151 N80-14266  GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028  Gasification of solid waste in a fluidized bed reactor with circulating sand  25 p0074 A80-18868
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303 Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p0091 N80-10068 Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074 Development of gas turbine fuels and combustion; An overview [CONF-790337-4] 25 p0093 N80-10391 Impact of new instrumentation on advanced turbine	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  25 p0076 A80-19275  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  25 p0151 N80-14266  GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028  Gasification of solid waste in a fluidized led reactor with circulating sand  25 p0074 A80-18868  Biomass energy enhancement: A report to the
exchanger for a gas turbine engine 25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022  Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  Development of gas turbine fuels and combustion; An overview [CONF-790337-4] 25 p0093 N80-10391  Impact of new instrumentation on advanced turbine research	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  CASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028  Gasification of solid waste in a fluidized ted reactor with circulating sand  25 p0074 A80-18868  Biomass energy enhancement: A report to the President's Council on Environmental Quality
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0004 A80-18303 Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p00091 N80-10022 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p00091 N80-10068 Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074 Development of gas turbine fuels and combustion; An overview [CONF-790337-4] Impact of new instrumentation on advanced turbine research [NASA-TH-79301] 25 p0166 N80-15133	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [AIAA PAPEE 80-0075]  25 p0076 A80-19275  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  25 p0151 N80-14266  GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028  Gasification of solid waste in a fluidized red reactor with circulating sand  25 p0074 A80-18868  Biomass energy enhancement: A report to the President's Council on Environmental Quality solar leat gasification
exchanger for a gas turbine engine 25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022  Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  Development of gas turbine fuels and combustion; An overview [CONF-790337-4] 25 p0093 N80-10391  Impact of new instrumentation on advanced turbine research	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028  Gasification of solid waste in a fluidized red reactor with circulating sand  25 p0074 A80-18868  Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification  [PB-296624/0]  25 p0094 N80-10396
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines [ATAA PAPER 80-0302] 25 p0004 A80-18303 Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p00091 N80-10022 Selection of optimal parameters of heat-pipe beat exchanger for a gas turbine engine 25 p00091 N80-10068 Dynamics of diesel fuel combustion in turbulent flow 25 p00091 N80-10074 Development of gas turbine fuels and combustion; An overview [CONF-790337-4] Impact of new instrumentation on advanced turbine research [NASA-TH-79301] Sintered silicon nitrode recuperator fabrication [NASA-CR-159706] 25 p0167 N80-15263 GAS TURBINES	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-1028  Gasification of solid waste in a fluidized red reactor with circulating sand  25 p0074 A80-18868  Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification  [PB-296624/0]  Gasification of residual materials from coal liquefaction. Evaluation of SEC 2 vacuum flash
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303 Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p0091 N80-10068 Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074 Development of gas turbine fuels and combustion; An overview [CONF-790337-4] 25 p0093 N80-10391 Impact of new instrumentation on advanced turbine research [NASA-TH-79301] 25 p0166 N80-15133 Sintered silicon nitrode recuperator fabrication [NASA-CR-159706] 25 p0167 N80-15263 GAS TURBINES The possibilities of increasing gas turbine	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [AIAA PAPEE 80-0075]  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-1028  Gasification of solid waste in a fluidized hed reactor with circulating sand  25 p0074 A80-18868  Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification  [PB-296624/0]  Gasification of residual materials from coal liquefaction. Evaluation of SEC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock
exchanger for a gas turbine engine  25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output  25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system  25 p0091 N80-10022  Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine  25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  Development of gas turbine fuels and combustion; An overview  [CONF-790337-4] 25 p0093 N80-10391  Impact of new instrumentation on advanced turbine research [NASA-TM-79301] 25 p0166 N80-15133  Sintered silicon nitrode recuperator fabrication [NASA-CR-159706] 25 p0167 N80-15263  GAS TURBINES  The possibilities of increasing gas turbine efficiency	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels [ATAA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499 Liquefied gaseous fuels safety and environmental control assessment program [DCE/EV-0036] 25 p0151 N80-14266 GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification 25 p0001 A80-10028 Gasification of solid waste in a fluidized red reactor with circulating sand 25 p0074 A80-18868 Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification [PB-296624/0] 25 p0094 N80-10396 Gasification of residual materials from coal liquefaction. Evaluation of SRC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes
exchanger for a gas turbine engine  25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output  25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [ATAA PAPER 80-0302]  25 p0004 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system  25 p0091 N80-10022  Selection of optimal parameters of heat-pipe beat exchanger for a gas turbine engine  25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  Development of gas turbine fuels and combustion; An overview [CONF-790337-4]  Impact of new instrumentation on advanced turbine research [NASA-TH-79301]  Sintered silicon nitrode recuperator fabrication [NASA-CR-159706]  GAS TURBINES  The possibilities of increasing gas turbine efficiency  25 p0032 A80-13024	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [AIMA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499 Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036] 25 p0151 N80-14266 GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028 Gasification of solid waste in a fluidized red reactor with circulating sand  25 p0074 A80-18868 Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification  [PB-296624/0] 25 p0094 N80-10396 Gasification of residual materials from coal liquefaction. Evaluation of SRC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes  [PE-2247-2] 25 p0119 N80-12191
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303 Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p0091 N80-10068 Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074 Development of gas turbine fuels and combustion; An overview [CONF-790337-4] 25 p0091 N80-10391 Impact of new instrumentation on advanced turbine research [NASA-TH-79301] 25 p0166 N80-15133 Sintered silicon nitrode recuperator fabrication [NASA-CR-159706] 25 p0167 N80-15263 GAS TUBBINES The possibilities of increasing gas turbine efficiency 25 p0032 A80-13024 A small hybrid solar closed-cycle gas turbine	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels [AIAA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds 25 p0085 A80-20499 Liquefied gaseous fuels safety and environmental control assessment program [DCE/EV-0036] 25 p0151 N80-14266 GASIFICATION Experimental techniques and mathematical models in the study of waste pyrolysis and gasification 25 p0001 A80-10028 Gasification of solid waste in a fluidized hed reactor with circulating sand  25 p0074 A80-18868 Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification [PB-296624/0] 25 p0094 N80-10396 Gasification of residual materials from coal liquefaction. Evaluation of SEC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes [PE-2247-2] 25 p0119 N80-12191 Commercialization task force for high Btu
exchanger for a gas turbine engine  25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output  25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system  25 p0091 N80-10022  Selection of optimal parameters of heat-pipe beat exchanger for a gas turbine engine  25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  Development of gas turbine fuels and combustion; An overview  [CONF-790337-4] 25 p0093 N80-10391  Impact of new instrumentation on advanced turbine research [NASA-TM-79301] 25 p0166 N80-15133  Sintered silicon nitrode recuperator fabrication [NASA-CR-159706] 25 p0167 N80-15263  GAS TUBBINES  The possibilities of increasing gas turbine efficiency  25 p0032 A80-13024  A small hybrid solar closed-cycle gas turbine cogeneration plant concept based on today's	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-1028  Gasification of solid waste in a fluidized hed reactor with circulating sand  25 p0074 A80-18868  Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification  [PB-296624/0]  Gasification of residual materials from coal liquefaction. Evaluation of SRC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes  [FE-2247-2]  Commercialization task force for high Btu gasification
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303 Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p0091 N80-10068 Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074 Development of gas turbine fuels and combustion; An overview [CONF-790337-4] 25 p0091 N80-10391 Impact of new instrumentation on advanced turbine research [NASA-TH-79301] 25 p0166 N80-15133 Sintered silicon nitrode recuperator fabrication [NASA-CR-159706] 25 p0167 N80-15263 GAS TUBBINES The possibilities of increasing gas turbine efficiency 25 p0032 A80-13024 A small hybrid solar closed-cycle gas turbine	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [AIMA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036] 25 p0151 N80-14266  GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028  Gasification of solid waste in a fluidized red reactor with circulating sand  25 p0074 A80-18868  Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification  [PB-296624/0] 25 p0094 N80-10396  Gasification of residual materials from coal liquefaction. Evaluation of SRC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes  [PE-2247-2] 25 p0119 N80-12191  Commercialization task force for high Btu gasification  [TID-28849] 25 p0135 N8C-13286
exchanger for a gas turbine engine  25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output  25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines  [AIAA PAPER 80-0302]  25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system  25 p0091 N80-10022  Selection of optimal parameters of heat-pipe beat exchanger for a gas turbine engine  25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow  25 p0091 N80-10074  Development of gas turbine fuels and combustion;  An overview  [CONF-790337-4]  Impact of new instrumentation on advanced turbine research  [NASA-TM-79301]  Sintered silicon nitrode recuperator fabrication  [NASA-CR-159706]  GAS TUBBINES  The possibilities of increasing gas turbine efficiency  25 p0032 A80-13024  A small hybrid solar closed-cycle gas turbine cogeneration plant concept based on today's technology  [ASBE PAPEE 79-WA/GT-3]  Novel power generation cycles using coal gas	levels  25 p0073 A80-18832  Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [ATAA PAPEE 80-0075]  The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499  Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036]  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-1028  Gasification of solid waste in a fluidized hed reactor with circulating sand  25 p0074 A80-18868  Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification  [PB-296624/0]  Gasification of residual materials from coal liquefaction. Evaluation of SRC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes  [FE-2247-2]  Commercialization task force for high Btu gasification
exchanger for a gas turbine engine  25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output  25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [ATAA PAPER 80-0302]  25 p0004 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system  25 p0001 N80-10022  Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine  25 p0001 N80-10068  Dynamics of diesel fuel combustion in turbulent flow 25 p0001 N80-10074  Development of gas turbine fuels and combustion; An overview [CONF-790337-4]  Impact of new instrumentation on advanced turbine research [NASA-TH-79301] Sintered silicon nitrode recuperator fabrication [NASA-CR-159706]  GAS TURBINES  The possibilities of increasing gas turbine efficiency  25 p0032 A80-13024  A small hybrid solar closed-cycle gas turbine cogeneration plant concept based on today's technology [ASME PAPER 79-WA/GT-3]  25 p0071 A80-18637  Novel power generation cycles using coal gas [ASME PAPER 79-WA/ENER-5]  25 p0071 A80-18645	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels  [AIMA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499 Liquefied gaseous fuels safety and environmental control assessment program  [DCE/EV-0036] 25 p0151 N80-14266 GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028 Gasification of solid waste in a fluidized red reactor with circulating sand  25 p0004 A80-18868 Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification  [PB-296624/0] 25 p0094 N80-10396 Gasification of residual materials from coal liquefaction. Evaluation of SRC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes  [PE-2247-2] 25 p0135 N80-13286 Gasification of residual materials from coal liquefaction. [TID-28849] 25 p0135 N8C-13286 Gasification of residual materials from coal liquefaction [FI-2247-22] 25 p0135 N8C-13286
exchanger for a gas turbine engine  25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output  25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302]  25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system  25 p0091 N80-10022  Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine  25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  Development of gas turbine fuels and combustion; An overview  [CONF-790337-4]  1mpact of new instrumentation on advanced turbine research [NASA-TH-79301]  Sintered silicon nitrode recuperator fabrication [NASA-CR-159706]  GAS TURBINES  The possibilities of increasing gas turbine efficiency  25 p0032 A80-13024  A small hybrid solar closed-cycle gas turbine cogeneration plant concept based on today's technology [ASME PAPER 79-WA/GT-3]  Novel power generation cycles using coal gas [ASME PAPER 79-WA/ENER-5]  25 p0071 A80-18645  Novel gas turbine cycles with coal gasification	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels [AIAA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds 25 p0085 A80-20499 Liquefied gaseous fuels safety and environmental control assessment program [DCE/EV-0036] 25 p0151 N80-14266 GASIFICATION Experimental techniques and mathematical models in the study of waste pyrolysis and gasification 25 p0001 A80-10028 Gasification of solid waste in a fluidized hed reactor with circulating sand  25 p0074 A80-18868 Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification [PB-296624/0] 25 p0094 N80-10396 Gasification of residual materials from coal liquefaction. Evaluation of SEC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes [FE-2247-2] 25 p0119 N80-12191 Commercialization task force for high Btu gasification [TID-28849] 25 p0135 N8C-13286 Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N8C-13286
exchanger for a gas turbine engine  25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output  25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302]  25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system  25 p0091 N80-10022  Selection of optimal parameters of heat-pipe beat exchanger for a gas turbine engine  25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow  25 p0091 N80-10074  Development of gas turbine fuels and combustion;  An overview  [CONF-790337-4]  Impact of new instrumentation on advanced turbine research  [NASA-TM-79301]  Sintered silicon nitrode recuperator fabrication [NASA-CR-159706]  GAS TURBINES  The possibilities of increasing gas turbine efficiency  25 p0032 A80-13024  A small hybrid solar closed-cycle gas turbine cogeneration plant concept based on today's technology [ASME PAPEE 79-WA/ENER-5]  Novel power generation cycles using coal gas [ASME PAPEE 79-WA/ENER-5]  25 p0071 A80-18646	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels [ATAA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499 Liquefied gaseous fuels safety and environmental control assessment program [DCE/EV-0036] 25 p0151 N80-14266 GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028 Gasification of solid waste in a fluidized ted reactor with circulating sand  25 p0074 A80-18868 Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification [PB-296624/0] 25 p0094 N80-10396 Gasification of residual materials from coal liquefaction. Evaluation of SRC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes [FE-2247-2] 25 p0119 N80-12191 Commercialization task force for high Btu gasification [TID-28849] 25 p0135 N8C-13286 Gasification of residual materials from coal liquefaction [FI-2247-22] 25 p0135 N8C-13286 Gasification of residual materials from coal liquefaction [FI-2247-22] 25 p0135 N8C-13286
exchanger for a gas turbine engine  25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output  25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [ATAA PAPER 80-0302]  25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system  25 p0091 N80-10022  Selection of optimal parameters of heat-pipe beat exchanger for a gas turbine engine  25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  Development of gas turbine fuels and combustion; An overview [CONF-790337-4]  Impact of new instrumentation on advanced turbine research [NASA-TH-79301]  Sintered silicon nitrode recuperator fabrication [NASA-CR-159706]  GAS TURBINES  The possibilities of increasing gas turbine efficiency  25 p0032 A80-13024  A small hybrid solar closed-cycle gas turbine cogeneration plant concept based on today's technology [ASME PAPEE 79-WA/GT-3]  Novel power generation cycles using coal gas [ASME PAPEE 79-WA/ENER-5]  25 p0071 A80-18645  Novel gas turbine cycles with coal gasification [ASME PAPEE 79-WA/ENER-6]  Studies on carbon dioxide cycles for power	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels [AIMA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499 Liquefied gaseous fuels safety and environmental control assessment program [DCE/ET-0036] 25 p0151 N80-14266 GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028 Gasification of solid waste in a fluidized ted reactor with circulating sand  25 p0074 A80-18868 Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification  [PB-296624/0] 25 p0094 N80-10396 Gasification of residual materials from coal liquefaction. Evaluation of SEC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes  [PE-2247-2] 25 p0119 N80-12191 Commercialization task force for high Btu gasification  [TID-28849] 25 p0135 N8C-13286 Gasification of residual materials from coal liquefaction  [PI-2247-22] 25 p0135 N8C-13286 Fasification of residual materials from coal liquefaction  [PI-2247-22] 25 p0135 N8C-13286 Fasification of residual materials from coal liquefaction  [PI-2247-22] 25 p0135 N8C-13286 Fasification of residual materials from coal liquefaction  [PI-2247-22] 25 p0135 N8C-13286 Fasification of residual materials from coal liquefaction  [PI-2247-22] 25 p0135 N8C-13286 Fasification of residual materials from coal liquefaction  [PI-2247-22] 25 p0135 N8C-13286
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303 Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p0091 N80-10068 Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074 Development of gas turbine fuels and combustion; An overview [CONF-790337-4] 25 p0091 N80-10391 Impact of new instrumentation on advanced turbine research [NASA-TH-79301] 25 p0166 N80-15133 Sintered silicon nitrode recuperator fabrication [NASA-CR-159706] 25 p0167 N80-15263 GAS TURBINES The possibilities of increasing gas turbine efficiency 25 p0032 A80-13024 A small hybrid solar closed-cycle gas turbine cogeneration plant concept based on today's technology [ASME PAPER 79-WA/GT-3] Novel power generation cycles using coal gas [ASME PAPER 79-WA/ENER-5] 25 p0071 A80-18645 Novel gas turbine cycles with coal gasification [ASME PAPER 79-WA/ENER-6] 25 p0071 A80-18646 Studies on carbon dioxide cycles for power generation. I - Fundamental condensation cycles	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels [AIAA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds 25 p0085 A80-20499 Liquefied gaseous fuels safety and environmental control assessment program [DCE/EV-0036] 25 p0151 N80-14266  GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification 25 p0001 A80-10028 Gasification of solid waste in a fluidized hed reactor with circulating sand  25 p0074 A80-18868  Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification [PB-296624/0] 25 p0094 N80-10396 Gasification of residual materials from coal liquefaction. Evaluation of SEC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes [FE-2247-2] 25 p0119 N80-12191 Commercialization task force for high Btu gasification [TID-28849] 25 p0135 N80-13286 Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289 Pilot plant gasification test on biomass fuels [PB-299077/8] 25 p0151 N80-14272 Conversion of cellulosic and waste polymer material to gasoline
exchanger for a gas turbine engine  25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output  25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [ATAA PAPER 80-0302]  25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system  25 p0091 N80-10022  Selection of optimal parameters of heat-pipe beat exchanger for a gas turbine engine  25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  Development of gas turbine fuels and combustion;  An overview  [CONF-790337-4]  Impact of new instrumentation on advanced turbine research  [NASA-TM-79301]  Sintered silicon nitrode recuperator fabrication [NASA-CR-159706]  GAS TURBINES  The possibilities of increasing gas turbine efficiency  25 p0032 A80-13024  A small hybrid solar closed-cycle gas turbine cogeneration plant concept based on today's technology [ASME PAPER 79-WA/ENER-5]  Novel power generation cycles using coal gas [ASME PAPER 79-WA/ENER-5]  Studies on carbon dioxide cycles for power generation. I - Fundamental condensation cycles  25 p0083 A80-19716	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels [ATAA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499 Liquefied gaseous fuels safety and environmental control assessment program [DCE/ET-0036] 25 p0151 N80-14266 GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification 25 p0001 A80-10028 Gasification of solid waste in a fluidized ted reactor with circulating sand 25 p0074 A80-18868 Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification [PB-296624/0] 25 p0094 N80-10396 Gasification of residual materials from coal liquefaction. Evaluation of SBC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes [FE-2247-2] 25 p0119 N80-12191 Commercialization task force for high Btu gasification [TID-28849] 25 p0135 N8C-13286 Gasification of residual materials from coal liquefaction [FI-2247-22] 25 p0135 N8C-13286 Gasification of residual materials from coal liquefaction [FI-2247-22] 25 p0135 N8C-13286 FRE-2290777/8] 25 p0151 N80-14272 Conversion of cellulosic and waste polymer material to gasoline [COO-2982-38] 25 p0169 N80-15291
exchanger for a gas turbine engine 25 p0003 A80-10613 Development of an aircraft-derivative gas turbine with high performance and large output 25 p0003 A80-10823 Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303 Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p0091 N80-10068 Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074 Development of gas turbine fuels and combustion; An overview [CONF-790337-4] 25 p0091 N80-10391 Impact of new instrumentation on advanced turbine research [NASA-TH-79301] 25 p0166 N80-15133 Sintered silicon nitrode recuperator fabrication [NASA-CR-159706] 25 p0167 N80-15263 GAS TURBINES The possibilities of increasing gas turbine efficiency 25 p0032 A80-13024 A small hybrid solar closed-cycle gas turbine cogeneration plant concept based on today's technology [ASME PAPER 79-WA/GT-3] Novel power generation cycles using coal gas [ASME PAPER 79-WA/ENER-5] 25 p0071 A80-18645 Novel gas turbine cycles with coal gasification [ASME PAPER 79-WA/ENER-6] 25 p0071 A80-18646 Studies on carbon dioxide cycles for power generation. I - Fundamental condensation cycles	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels [ATAA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499 Liquefied gaseous fuels safety and environmental control assessment program [DCE/ET-0036] 25 p0151 N80-14266 GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification  25 p0001 A80-10028 Gasification of solid waste in a fluidized ted reactor with circulating sand  25 p0074 A80-18868 Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification [PB-29624/0] 25 p0094 N80-10396 Gasification of residual materials from coal liquefaction. Evaluation of SRC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes [FE-2247-2] 25 p0119 N80-12191 Commercialization task force for high Btu gasification [TID-28849] 25 p0135 N8C-13286 Gasification of residual materials from coal liquefaction [FI-2247-22] 25 p0135 N8C-13286 Gasification of residual materials from coal liquefaction [FI-2247-22] 25 p0135 N8C-13286 [PB-299077/8] 25 p0135 N8C-13289 Pilot plant gasification test on biomass fuels [PB-299077/8] 25 p0151 N8O-14272 Conversion of cellulosic and waste polymer material to gasoline [COC-2982-38] 25 p0169 N8O-15291 Investigation of the viability and cost
exchanger for a gas turbine engine  25 p0003 A80-10613  Development of an aircraft-derivative gas turbine with high performance and large output  25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302]  25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas turbine engine system  25 p0091 N80-10022  Selection of optimal parameters of heat-pipe beat exchanger for a gas turbine engine  25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  Development of gas turbine fuels and combustion;  An overview  [CONF-790337-4]  Impact of new instrumentation on advanced turbine research  [NASA-TM-79301]  Sintered silicon nitrode recuperator fabrication [NASA-CR-159706]  GAS TURBINES  The possibilities of increasing gas turbine efficiency  25 p0032 A80-13024  A small hybrid solar closed-cycle gas turbine cogeneration plant concept based on today's technology [ASME PAPER 79-WA/ENER-5]  Novel power generation cycles using coal gas [ASME PAPER 79-WA/ENER-5]  Solo71 A80-18645  Novel gas turbine cycles with coal gasification [ASME PAPER 79-WA/ENER-5]  Studies on carbon dioxide cycles for power generation. I - Fundamental condensation cycles  25 p0083 A80-19716  Open cycle air turbine solar thermal power system  25 p0083 A80-19989  Screening evaluation of novel power cycles	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels [ATAA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds  25 p0085 A80-20499 Liquefied gaseous fuels safety and environmental control assessment program [DCE/EV-0036] 25 p0151 N80-14266 GASIFICATION  Experimental techniques and mathematical models in the study of waste pyrolysis and gasification 25 p0001 A80-10028 Gasification of solid waste in a fluidized hed reactor with circulating sand 25 p0074 A80-18868 Biomass energy enhancement: A report to the President's Council on Environmental Quality solar heat gasification [PB-296624/0] 25 p0094 N80-10396 Gasification of residual materials from coal liquefaction. Evaluation of SEC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes [FE-2247-2] 25 p0119 N80-12191 Commercialization task force for high Btu gasification [TID-28849] 25 p0135 N8C-13286 Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N8C-13286 Gasification of cesidual materials from coal liquefaction [FE-2297-72] 25 p0135 N8C-13286 Casification of cesidual materials from coal liquefaction [FE-2297-22] 25 p0135 N8C-13286 Gasification of cesidual materials from coal liquefaction [FE-2247-22] 25 p0135 N8C-13286 Conversion of cellulosic and waste polymer material to gasoline [COO-2982-38] 25 p0169 N8O-15291 Investigation of the viability and cost effectiveness of solid fuel gasifiers close coupled to internal combustion engines for 200
exchanger for a gas turbine engine  25 p0003 A80-10613  Development of an aircraft-derivative gas turbine  with high performance and large output  25 p0003 A80-10823  Thermal barrier coatings for aircraft gas turbines  [AIAA PAPER 80-0302]  25 p0064 A80-18303  Study of heat-pipe heat exchanger in the small gas  turbine engine system  25 p0091 N80-10022  Selection of optimal parameters of heat-pipe heat  exchanger for a gas turbine engine  25 p0091 N80-10068  Dynamics of diesel fuel combustion in turbulent flow  25 p0091 N80-10074  Development of gas turbine fuels and combustion;  An overview  [CONF-790337-4]  10 po091 N80-10391  Impact of new instrumentation on advanced turbine  research  [NASA-TH-79301]  25 p0166 N80-15133  Sintered silicon nitrode recuperator fabrication  [NASA-CR-159706]  25 p0167 N80-15263  GAS TURBINES  The possibilities of increasing gas turbine  efficiency  25 p0032 A80-13024  A small hybrid solar closed-cycle gas turbine  cogeneration plant concept based on today's  technology  [ASME PAPER 79-WA/ET-3]  Novel power generation cycles using coal gas  [ASME PAPER 79-WA/ENER-5]  25 p0071 A80-18645  Novel gas turbine cycles with coal gasification  [ASME PAPER 79-WA/ENER-5]  Studies on carbon dioxide cycles for power  generation. I - Fundamental condensation cycles  25 p0083 A80-19716  Open cycle air turbine solar thermal power system  25 p0083 A80-19989	Combustion and turbulence characteristics of cyclone combustors for burning low calorific value fuels [AIAA PAPEE 80-0075] 25 p0076 A80-19275 The controlling production mechanism of methane gas from coalbeds 25 p0085 A80-20499 Liquefied gaseous fuels safety and environmental control assessment program [DCE/EV-0036] 25 p0151 N80-14266  GASIFICATION Experimental techniques and mathematical models in the study of waste pyrolysis and gasification 25 p0001 A80-10028 Gasification of solid waste in a fluidized hed reactor with circulating sand  Energy enhancement: A report to the President's Council on Environmental Qualitysolar heat gasification [PB-296624/0] 25 p0094 N80-10396 Gasification of residual materials from coal liquefaction. Evaluation of SRC 2 vacuum flash drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes [PE-2247-2] 25 p0119 N80-12191 Commercialization task force for high Btu gasification [TID-28849] Gassification of residual materials from coal liquefaction [TID-28849] Gassification task force for high Btu gasification [TID-28977/8] 25 p0135 N80-13286 Gasification of residual materials from coal liquefaction [PE-2247-22] 25 p0135 N80-13286 [PB-299077/8] 25 p0151 N80-14272 Conversion of cellulosic and waste polymer material to gasoline [CO0-2982-38] 25 p0169 N80-15291 Investigation of the viability and cost effectiveness of solid fuel gasifiers close

GASOHOL (FUEL) SUBJECT INDEX

GASOHOL (FURL)	GEOLOGY
Minimum ignition energies and quenching distances	Summaries of physical research in the geosciences
of methanol blends	[DCE/ER-0030] 25 p0137 N80+13582
25 p0004 A80-11331	GROPHYSICS
Gasoline's alternatives are feasible	Summaries of physical research in the geosciences
25 p0034 A80-13225	[DOE/ER-0030] 25 p0137 N80-13582
Gasohol - Does it or doesn't it produce positive	
	GEOSINCHRONOUS ORBITS
net energy	The satellite power system concept and program
25 p0034 A80-13863	[SAME PAPER 1305] 25 p0086 A80-20643
Technico economic study of the use of hydrogen and	Analysis of GaAs and Si solar cell arrays for
methanol for road transport	earth orbital and orbit transfer missions
25 p0042 A80-15993	[NASA-TM-81383] 25 p0167 N80-15204
Net energy analysis of alcohol production from	GEOTHERNAL BRERGY CONVERSION
sugarcane	The influence of thermophysical properties on the
25 p0062 A80-18165	design and sizing of geothermal rower plant
Biomass-based alcohol fuels: The near-term	components
potential for use with gasoline	[ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593
[HCP/T4101-03] 25 p0093 N80-10393	Methods for regional assessment of geothermal
Physical properties of gasoline/alcohol automotive	resources
fuels	25 p0075 A80-19202
[CONF-790520-4] 25 p0134 N80-13273	An estimate of the resource potential of New
The 50,000 mile methanol/gasoline blend fleet study	Zealand geothermal fields for power generation
fuel efficiency and exhaust emissions	25 p0076 A80-19208
[CONF-790520-6] 25 p0134 N80-13275	Transient-pressure analysis in geothermal steam
Environmental planning and assessment for highway	reservoirs with an immobile vaporizing liquid
vehicle use to alcohol fuels	phase
[CONF-790520-2] 25 p0168 N80-15281	25 p0076 A80-19209
Report of the Alcohol Fuel Policy Review	Overview of geothermal energy in the United States
[DOE/PE-0012] 25 p0169 N80-15290	[CONF-790530-1] 25 p0102 N80-10661
GASOLINE	Geothermal resources and technology in the United
Unleaded gasoline shortages and fuel switching -	States
The potential impact in Southern California	[PB-296623/2] 25 p0102 N80-10677
. 25 p0004 A80-11019	Environmental implications for geothermal energy
Research guidance studies to assess gasoline from	development
coal by methanol-to-gasoline and sasol-type	[CONF-790445-3] . 25 p0103 N80-10694
Pischer-Tropsch technologies	Geothermal energy for industrial application
[FE-2447-13] 25 p0093 N80-10388	[LBL-8919] 25 p0111 N80-11579
Biomass-based alcohol fuels: The near-term	Development of integrated thermionic circuits for
potential for use with gasoline	geothermal high-temperature applications
[HCP/T4101-03] 25 p0093 N80-10393	[LA-UR-79-723] 25 p0112 N80-11592
Economics of gasoline production from underground	INEL geothermal environmental program
coal gasification via mobil-M process	[TREE-1340] 25 p0112 N80-11595
[CONF-790405-12] 25 p0106 N80-11246	User manual for GEOCITY: A computer model for
Driving cycle comparisons of energy economies and	geothermal district heating cost analysis
emissions from an alcohol and gasoline fueled	[PNI-2742] 25 p0113 N80-11605
vehicle	Heber geothermal demonstration power plant
[CONF-790520-7] 25 p0134 N80-13274	[EPRI-ER-863] 25 p0114 N80-11607
The 50,000 mile methanol/gasoline blend fleet study	A manual for cataloging and indexing documents
fuel efficiency and exhaust emissions	geothermal energy data base
[CONF-790520-6] 25 p0134 N80-13275	[LBL-4432-REV-1] 25 p0118 880-11946
Ethanol/gasoline blends as automotive fuels	Comparison of geothermal energy with coal, oil,
[CONF-790520-5] 25 p0168 N80-15280	and natural gas for selected uses
GEOCHEMISTRY	[DOE/ET-27139-1] 25 p0123 N80-12558
Analysis and simulated diagenesis of kerogen in a	Using surface waters for supplementing injection
recent bottom mud from Mono Lake, California - A	at the Salton Sea Geothermal Field (SSGF),
comparison with selected ancient kerogens	Southern California
25 p0085 A80-20378	[UCRL-83011] 25 p0124 N80-12561
Summaries of physical research in the geosciences	Hybrid staging of geothermal energy conversion
[DOE/ER-0030] 25 p0137 N80-13582	processes
Geothermal energy development from the Salton	[UCID-17949] 25 p0125 N80-12569
Trough to the High Cascades Cerro Preto,	New concepts for converting the energy in low-to
Lower California and Mt. Hood, Oregon	medium-temperature liquids, with emphasis on
[LBL-8703] 25 p0171 N80-15568	geothermal applications
GBOLOGICAL PAULTS	[UCRL-52583] 25 p0 125 N80-12570
The Bullaren lineament, southwestern Sweden - A	Waste heat rejection from geothermal power stations
possible site for geothermal heat extraction	[CRNL/TM-6533] 25 p0125 N80-12575
25 p0075 A80-19049	Condensation and evaporation heat transfer with
GEOLOGICAL SURVEYS	low-boiling temperature fluids for ocean
Geology of the Athabasca oil sands	thermal and geothermal energy conversion
25 p0050 A80-17236	[CONF-790539-1] 25 p0137 N80-13412
Assessment of geothermal potential of central and	Multi-use geothermal energy system with
southern Tuscany	augmentation for enhanced utilization.
25 p0075 A80-19203	Non-electric application of geothermal energy in
Evaluation of Baltazor known geothermal resources	Susanville, California
area, Nevada	[COE/ET-248447/1] 25 p0142 N80-13660
25 p0076 A80-19206	Hot dry rock geothermal energy development program
Borehole geological assessment	[LA-7807-HDR] 25 p0144 N80-13673
[NASA-CASE-NPO-14231-1] 25 p0104 N80-10709	Geothermal energy. Part 2: Corrosion and
Geothermal exploration methods and results:	equipment, volume 3. Citations from the NTIS
Inland states	data base
[LA-UR-79-665] 25 p0 108 N80-11543	[NTIS/PS-79/0815/5] 25 p0148 N80-13716
Geothermal energy. Part 1: Exploration, volume	Geothermal energy. Part 3: Technology and
<ol><li>Citations from the NTIS data base</li></ol>	general studies, volume 3. Citations from the
[NTIS/PS-79/0814/8] 25 p0148 N80-13715	NTIS data base
Geothermal energy development from the Salton	[NTIS/PS-79/0816/3] . 25 p0148 b80-13717
Trough to the High Cascades Cerro Preto,	Geothermal energy, volume 3. Citations from the
Lower California and Mt. Hood, Oregon	Engineering Index data base
[LBL-8703] 25 p0171 N80-15568	[BIIS/PS-79/0818/9] 25 p0148 B80-13718

GERNANION SUBJECT INDEX

Geothermal exploration methods and results:

Geothermal energy. Part 3: Technology and general studies, volume 4. Citations from the NTIS data base
[NTIS/PS-79/0817/1] 25 p0148 N80-1: Inland states
[LA-UR-79-665] 25 p0108 N80-11543 LBTIS/PS-79/0817/1] 25 p0148 880-13719 Geothermal energy, volume 4. Engineering Index data base [NTIS/PS-79/0819/7] 25 p0148 880-13720 Commercialization critical [LBL-8919] for industrial application [LBL-8919] INEL geothermal environmental program [TREE-1340] 25 poll12 N80-User manual for GEOCITY: A computer model for geothermal district heating cost analysis 25 p0112 N80-11595 Commercialization strategy report for hydrothermal electric and direct heat application --- project planning of geothermal resources for geothermal energy conversion for heating electricity [PNL-2742] 25 p0113 R80-11605 Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3] 25 p0118 R80-11711 generation [TID-28840-DRAFT] 25 p0157 N80-Lawrence Livermore Laboratory geothermal energy 25 p0157 N80-14508 Geopressure energy resource evaluation --- Texas program: A status report on the development of the Total-Plow concept [UCRL-50046-77] 25 p0159 N80-14 and Louisiana [OBNL/PFA-79/2] 25 p0138 ¥80-13605 Analysis of binary thermodynamic cycles for a moderately low-temperature geothermal resource [TEEE-1365] 25 p0139 M80-1 25 p0159 N80-14529 Preliminary design of axial flow hydrocarbon [TREE-1365] 25 p0139 N80-13627 Tidal pressure response as a reservoir engineering turbine/generator set for geothermal applications [BPRI-BR-513] 25 p016C N80-14536 Geothermal energy: Program summary tool [DOE/ET-0101] 25 p0161 N80-14542 [UCRI-83012] 25 p0141 N80-13647 Multi-use geothermal energy system with augmentation for enhanced utilization. Geothermal energy market study on the Atlantic coastal plain. Economic evaluation model for direct use of moderate temperature, up to 250 P, geothermal resources in the northern Atlantic Non-electric application of geothermal energy in Susanville, California [DOE/ET-248447/1] 25 p0142 880-136 coastal plain [PB-298785/7] 25 p0142 N80-13660 Hot dry rock geothermal energy development program
[LA-7807-HDR] 25 p0144 880-13673 25 p0165 N80-14578 | La-7807-HDR | 25 p0144 nov | Call | All-union scientific and technical conference on use of the earth's heat for the production of electric power - summary of reports [CONF-751270-SUMM] 25 p0176 N80-15615 Use of geothermal energy for desalination in New [NIIS/PS-79/0814/8] 25 p0148 E80-Geothermal energy. Part 2: Corrosion and equipment, volume 3. Citations from the NIIS Mexico: A feasibility study
[PB-299271/7] 25 p0179 N80-15645 data base [NTIS/PS-79/0815/5] Identification of environmental control 25 p0148 N80-13716 technologies for geothermal development in the Imperial Valley of California [UCBL-52548] 25 p0179 N80-1 GROTHERMAL RESOURCES Cethermal energy. Part 3: Technology and general studies, volume 3. Citations from the 25 p0179 N80-15668 NTIS data base [NTIS/PS-79/0816/3] 25 p0148 N80-13717 [NTIS/PS-79/0816/3] 25 p0148 N80-13717
Geothermal energy, volume 4. Citations from the
Engineering Index data base
[NTIS/PS-79/0819/7] 25 p0148 N80-13720
Energy from the West: Energy resource development
systems report. Volume 6: Geothermal
[PB-299182/6] 25 p0152 N80-14468
Deep terrestrial heat flow measurements in New Geothermal resources of the Atlantic Coastal Plain 25 p0C16 A80-11977 Geothermal energy markets on the Atlantic coastal plain 25 p0016 A80-11978 Prospects of future geothermal energy development 25 p0049 A80-17138 Heat flow and heat transfer conditions in the bottom sediments of the equatorial Indian Ocean Mexico and neighboring geologic areas Commercialization strategy report for hydrothermal electric and direct heat application --- project planning of geothermal resources for geothermal 25 p0075 A80-19048
The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction energy conversion for heating electricity generation 25 p0075 A80-19049 Workshop on Geothermal Resource Assessment and Reservoir Engineering, Larderello, Italy, September 12-16, 1977, Proceedings [TID-28840-DRAFT] Geothermal energy market study on the Atlantic coastal plain. Economic evaluation model for direct use of moderate temperature, up to 250 F, geothermal resources in the northern Atlantic 25 p0075 A80-19201 Methods for regional assessment of geothermal 25 p0075 A80-19202 Assessment of geothermal potential of central and coastal plain
[PR-298785/7]
Geological and geothermal data use investigations
for application explorer mission-A, heat 25 p0165 \$80-14578 southern Tuscany 25 p0075 A80-19203 Analysis of reservoir pressure and decline curves in Serrazzano zone, Larderello geothermal field 25 p0075 A80-19204 capacity mapping mission [E80-10033] 25 p0170 N80-15528 Geothermal energy development from the Salton
Trough to the High Cascades --- Cerro Preto,
Lower California and Mt. Hood, Oregon
[IBL-8703] 25 p0171 N80 Thermodynamic behaviour of the Bagnore gecthermal 25 r0171 N80-15568
District space heating potential of low
temperature hydrothermal 25 p0075 A80-19205 Evaluation of Baltazor known geothermal resources temperature hydrothermal geothermal resources in the southwestern United States --- using area, Nevada 25 p0076 A80-19206 computerized simulation [NMEI-10-1] The United Nations' approach to geothernal resource assessment 25 p0172 N80-15582 25 p0076 A80-19207 All-union scientific and technical conference on use of the earth's heat for the production of electric power - summary of reports [CONF-751270-SUMM] 25 p0176 N80-15615 Use of geothermal energy for desalination in New Mexico: A feasibility study [EB-299271/7] 25 p0179 N80-15645 An estimate of the resource potential of New Zealand geothermal fields for power generation 25 p0076 A80-19208 Transient-pressure analysis in geothermal steam reservoirs with an immobile vaporizing liquid GERMANIUM 25 p0076 A80-19209 Analysis of resource pricing for geothermal Calculated and measured efficiencies of thin-film electric power production shallow-homojunction Gals solar cells on Ge 25 p0C88 A80-20889 substrates 25 p0039 A80-15141 Environmental implications for geothermal energy development [CONF-790445-3]

25 p0103 N80-10694

•		•	
GERMANY		Energy system in the Far West: Impac	ts of the
On the substitution of petroleum		National Energy Act of 1978	
sources - Using the energy econ	omics of West		p0140 N80-13638
Germany as an example	25 -0.074 3.00 40.000	Solar/wind handbook for Hawaii: Tech	
GETSERS	25 p0074 A80-19000	applications for Hawaii, the Pacific	
Environmental overview of geother	mal development.	sites worldwide with similar climat:	1C CONditions p0177 N80-15628
The Geysers-Calistoga KGRA. Vo		[UCRL-15053] 25 ] HAZARDS	PO 177 NOV-15628
and recommendations	Jume 1. Issues	Comparativé risk assessment of energy	Systons
[UCRL-52496-VOL-1]	25 p0177 N80-15626		p0049 A80-17139
GLASS		Hazardous properties and environmenta	l effects of
Improved planar solar convertor h	ased on uranyl	materials used in Solar Heating and	
neodymium and holmium glasses	•	(SHAC) technologies: Interim handbo	
•	25 p0083 A80-19740		P0163 N80-14565
GLYCOLS		BEAT CAPACITY MAPPING MISSION	
The conversion of ethylene glycol	with air in	Geological and geothermal data use in	vestigations
alkaline fuel cells		for application explorer mission-A,	
	25 p0011 A80-11850	capacity mapping mission	
GOAL THEORY			p0170 N80-15528
Resolving environmental issues in		BEAT EXCHANGERS	
development: Roles for the Dep	eartment of Energy	Selection of optimal parameters of hea	at-pipe heat
and its field offices	25 -0000 200 40626	exchanger for a gas turbine engine	
[RAND/R-2335-DOE]	25 p0099 N80-10636		p0003 A80-10613
GOLD COATINGS		Design of a small thermochemical rece	iver for
Preparation and properties of	to benefor color	solar thermal power	-0005 200 44000
Au-/n/AlxGal-xAs-/n/GaAs Schott cells	.ky barrier solar		p0005 A80-11338
Cells	25 p0086 A80-20716	Heat exchange fluids and techniques -	
GOVERNMENT PROCUREMENT	25 poved 400-20710	Effectiveness - NTU charts for latent	P0041 A80-15659
Energy saving strategies for fede	ral procurement	units heat exchangers	neat storage
[PB-296969/9]	25 p0103 N80-10678		p0066 A80-18561
GOVERNMENT/INDUSTRY RELATIONS	25 po 100 200 10070	Multi-pass solar heater with heat-exc	
Prospects for the near-term comme	rcialization of	passes and exposed to non-uniform ra	
shale oil in the United States			p0070 180-18600
	25 p0078 A80-19474	Study of heat-pipe heat exchanger in	the small gas
The great adventure: A report or	the 10 regional	turbine engine system	··· <b>3</b>
public hearings on solar energy	for the domestic		p0091 N80-10022
policy review		Selection of optimal parameters of he	
[HCP/U6354-01]	25 p0124 N80-12567	exchanger for a gas turbine engine	
Role of the government in the dev	elopment of solar		p0091 N80-10068
energy		Survey and description of transport p	
[SERI/TP-52-138]	25 p0178 N80-15639	packed-beds for thermal emergy :	
GRAPHITE-EPOXY COMPOSITE MATERIALS			p0121 N80-12340
Recent spin test of two composite	e wadon wheel	Dynamic response of a packed-hed ener	gy storage
flywheels	25 2442 222 43642	system to a time varying inlet temperature	
[SAND-79-1669C]	25 p0140 N80-13640		p0121 N80-12341
GRAPHS (CHARTS)	l matic mothed for	Fluid Dynamics of Porous Media in Ener	rgy
Correspondence between solar load passive water wall systems and		Applications, volume 2 [VKI-LEC-SER-1979-4-VOL-2] 25	-0121 NOO 12266
performance estimates	I-Chait	Thermoelectric ocean thermal energy co	p0121 N80-12346
Per rormanee estimates	25 p0029 A80-12821		p0124 N80-12564
GRASSES	20 P. 102 122 1221	Operational experience with drain-down	
Production of sugarcane and tropi	ical grasses as a		p0125 N80-12576
renewable energy source	,	Energy conservation via heat transfer	enhancement
[ DO E/CS/5912-T1]	25 p0168 N80-15277		p0147 N80-13707
GRIDS	-	Corrosion protection of solar-collecte	or heat
The optimal design of solar cell	grid lines	exchangers with electrochemically de	
	25 p0005 A80-11335	[C00-4297-1] 25	p0171 N80-15569
Computer analysis of grids currer	itly used for	HEAT GENERATION	
CdS/Cu2S solar cells		Heat generation in Li/SCC12 cells	
GROUND WATER	25 p0C89 A80-20893		p0012 A80-11855
		Heat and electricity from the sun using	ng parabolic
Two-dimensional transient dispers	PION GIIG	dish collector systems	-0007 -00 1077
adsorption in porous media [UCRL-81970]	25 p0108 N80-11386		p0037 180-14706
Surface water quality parameters		HEAT MEASUREMENT  MeV cluster ion beam diagnostics by me	cans of
oil shale development	TOL MONICOLING	calorimetry and time-of-flight speci	
[PB-297984/7]	25 p0153 N80-14470		
	== F2.22 200 11110	HEAT OF COMBUSTION	p0080 180-19612
Н		Sintered silicon mitrode recuperator :	fahrication
П			p0167 N80-15263
HAMSTERS		HRAT OF FORMATION	po.o. 200 15205
Combined effects of polycyclic ar		Application of packed beds to energy :	storage use
hydrocarbons and sunlight c	on Chinese hamster	of latent heat of fusion	•
₹79 cells			p0121 N80-12353
[CONF-790447-4]	25 p0131 N80-12631	HEAT PIPES	=
HANFORD REACTORS		Selection of optimal parameters of hea	at-pipe heat
Quality assurance in alternative		exchanger for a gas turbine engine	
[RHC-SA-107]	25 p0095 N80-10504	25 ]	P0003 A80-10613
HARMONIC GENERATORS	aitanaa hakt	Optimal insulation of solar heating s	ystem ripes
Improving the reliability of capa		and tanks	-0004 100 4005
in power grids with higher-harm		The thormal trieds	p0021 A80-12434
HAWAII	25 p0008 A80-11671	The thermal triode construction by	y adding
Solar energy system performance e	evaluation:	controlling zone to heat pipe	-0027 100-14CTC
A-Frame Industries, single fami		Design of heat pipe cooled laser mirro	p0037 A80-14675
Kaneohe, Hawaii		inverted meniscus evaporator wick	
[SOLAR/1010-78/14]	25 p0101 N80-10659	• • • • • • • • • • • • • • • • •	p0064 A80-18366

SUBJECT INDEX HEAT STORAGE

Osmotically pumped energy transport system
[ATAA PAPER 80-0210] 25 p0064 A80-18378
Performance testing of a hydrogen heat pipe
[ATAA PAPEE 80-0212] 25 p0064 A80-18379
Study of heat-pipe heat exchanger in the small gas HRAT RESISTANT ALLOYS The erosion/corrosion of small superalloy turbine rotors operating in the effluent of a PPB coal combustor 25 p0001 A80-10043 Microstructural objectives for high-temperature alloys in advanced energy systems turbine engine system 25 p0091 N80-10022 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine 25 p0002 A80-10306 HEAT SOURCES 25 p0091 N80-10068 General-purpose heat source development. Phase 1: Performance limits for liquid-metal heat pipes containing long adiabatic sections
[LA-UR-79-1241] 25 p0095 N80-Design requirements
[LA-7385-SB] 25 p0114 N80-11608 General-purpose heat source project space nuclear safety program and radioisotopic terrestrial safety program --- plutonium oxide [LA-7519-PB] 25 p0118 880-11889 Melting in phase-change thermal storage media [COO-2993-1] 25 p0173 880-15584 25 p0095 N80-10472 Cooling aluminum molds using heat pipes
[BDX-613-2039-REV] 25 p0 25 p0108 N80-11384 Heat pipe cooled power magnetics [NASA-CR-159659] HBAT PUMPS 25 p0136 N80-13362 Absorption heat pumps for solar space heating HEAT STORAGE systems Performance of an inexpensive constant flow solar  $^{\rm -}$   $25~\rm p0\,036~A80\text{--}14672$  Performance and analysis of a 'series' heat collector/storage system in ground 25 p0003 A80-10846 Overview of division of energy storage program pump-assisted solar heated residence in Madison, Department of energy 25 p0C61 A80-18132 25 p0016 A80-11979 A simplified procedure for performance of solar systems with heat pumps
[ASME PAPER 79-WA/SOL-23] 25 p0065 A80-Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0C65 A80-18555 25 p0017 A80-11986 Operational and parameter studies of a solar-powered absorption cycle system with On the performance of air-based solar heating systems utilizing phase-change energy storage internal latent energy storages
[ASME PAPER 79-WA/SOL-27] 25 p0067 A80-18568
Optimization and comparison strategies fcr solar 25 p0020 A80-12427 Optimal insulation of solar heating system pipes and tanks 25 p0021 A80-12434 energy systems Energy systems

[ASME PAPER 79-WA/SOL-26] 25 p0067 A80-18573

Performance of heat pumps at elevated evaporating temperatures - With application to solar input [ASME PAPER 79-WA/SOL-19] 25 p0069 A80-18587

Residential solar heat pump systems - Thermal and Modeling of a thermal wall panel using phase change materials 25 p0021 A80-12439 Design criteria in PCM wall thermal storage - Phase Change Materials economic performance
[ASME PAPER 79-WA/SOL-25] 25 p0021 A80-12440 Storage of solar heat by solid-liquid phase change 25 p0024 A80-12755 25 p007C A80-18591 A solar assisted and wind powered heat rump for Review of thermal storage materials from the view residential dwellings
[ASME PAPER 79-WA/HI-33] 25 p007C A80-18595 point of solar energy application Solar assisted heat pump overview and summary of 25 p0025 A80-12756 in-house research [BNL-24911] An incongruent heat-of-fusion system - CaCl2-6H2O - made congruent through modification of the chemical composition of the system --- during 25 p0098 N80-10624 Heat pump centered integrated community energy systems: System development
[ANL/ICES-TM-27] \* 25 p0029 A80-12823 25 p011C N80-11571 Energy-storage systems --- pumped-storage High cop heat pump system, phase 1, results [HCP/M5056-01] 25 p0110 N80-11573 hydroelectric plants, compressed-air energy-storage plants, electric batteries and Heat pump centered integrated community energy systems; System development [ANL-ICES-TH-28] hot water storage 25 p0111 N80-11574 25 p0034 A80-13513 DOP heat pump centered integrated community energy systems project [CONF-790362-1] 25 p0112 N80-1158 Heat exchange fluids and techniques --- Book
25 p0041 180-15659 25 p0112 N80-11586 On a calculation procedure for a heat accumulator Optimization of photovoltaic/thermal collector in a solar heating system heat pump systems
[COO-4577-7] 25 p0044 A80-16630 25 p0124 N80-12566 Solar energy storage by metal hydride 25 p0053 A80-17582 A solar energy system with annual aquifer storage [ASME PAPER 79-WA/SOL-30] 25 p0066 A80-18560 Effectiveness - NTH Charte for lateral Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1] Effectiveness - NTU charts for latent heat storage Design, construction, and operation of the solar units --- heat exchangers
[ASME PAPER 79-WA/SOL-16] assisted heat pump ground coupled storage experiments at Brookhaven National Laboratory 25 p0066 A80-18561 Preliminary analysis of a total solar heating system [BNL-25908] 25 p0142 N80-13654 Community heating and cooling systems
[CONF-790446-6] 25 [ASME PAPER 79-WA/SOL-40] 25 pt Solar thermal central receiver systems [ASME PAPER 79-WA/HT-38] 25 pt 25 p0069 A80-18583 25 p0147 N80-13706 Dissociation pressure measurements on salts 25 p0070 A80-18596 proposed for thermochemical energy storage
[SAND-79-8033]

Commercial solar augmented heat pumr system
[FPRI-ER-1004]

25 p0160 N80-14537 An evaluation of thermal energy storage for residential air conditioning applications
[ASME PAPER 79-WA/HT-31] 25 p0071 A80-10
Under ground thermal storage in the operation of 25 p0071 A80-18631 New heat transfer geometry for hydride heat solar ponds engines and heat rumps [LA-7822] 25 p0077 A80-19471 25 p0169 N80-15289 Survey of solar thermal energy storage subsystems for thermal/electric applications Heat pump centered integrated community energy systems: Systems development
[ANL/ICES-TH-30] 25 p0173 N80
Heat pump centered integrated community energy [CRNL/TM-5758] 25 p0098 N80-10627 Economic performance of passive solar heating: A 25 p0173 N80-15588 preliminary analysis [LA-UR-78-2861] systems; System development
[ANL/ICES-TM-26] 25 p0100 N80-10645 State of the art of sensible heat storage for 25 p0 173 N80-15589 solar heat pump systems
[BNL-25909] Intermediate report on the performance of plate-type ice-maker heat pumps
[ORNL/CON-23] 25 p0101 N80-10651 25 p0176 N80-15619

Denfermance menitoring of an off mark beautiful and	
Performance monitoring of an off-peak heating and	Noniterative solution of heat transfer equation of
cooling system utilizing thermal storage and	fluid flow in solar collector
solar augmented heat pump	[ASME PAPER 79-WA/SOL-24] 25 p0068 A80-18577
[EPRI-ER-845] 25 p0102 N80-10662	Proceedings: Solar Thermal Power User Review
Energy storage for solar air conditioning	Panel Meeting
applications utilizing a form-stable, high	[SERI/TP-69-221] 25 p0113 H80-11598
density polyethylene pellet bed	Pluid Cynamics of Porous Media in Energy
[MLH-2598 (OP) ] 25 p0113 N80-11603	Applications, volume 1 heat storage and
Solar energy with latent heat storage:	
Fundamentals and applications	transfer in solar energy conversion systems
[ASSA-10/1978] 25 p0116 N80-11632	[VKI-LEC-SER-1979-4-VCL-1] 25 p0121 N80-12338
	Heat storage and thermal transfer aspects of the
Fluid Dynamics of Porous Media in Energy	dynamic behaviour of a packed bed
Applications, volume 1 heat storage and	25 p0121 N80-12342
transfer in solar energy conversion systems	Application of packed beds to energy storage use
[VKI-LEC-SPR-1979-4-VOL-1] 25 p0121 N80-12338	of latent heat of fusion
Survey and description of transport phenomena in	25 p0121 N80-12353
packed-beds for thermal emergy storage	Condensation and evaporation heat transfer with
25 p0121 N80-12340	low-boiling temperature fluids for ocean
Dynamic response of a packed-bed energy storage	thermal and geothermal energy conversion
system to a time varying inlet temperature	
25 p0121 N80-12341	
Heat storage and thermal transfer aspects of the	Energy conservation via heat transfer enhancement
	[C00-4649-4] 25 p0147 N80-13707
dynamic behaviour of a packed bed	Impact of new instrumentation on advanced turbine
25 p0121 N80-12342	research
Effect of operating temperatures on the cost of	[NASA-TH-79301] 25 p0166 N80-15133
energy from solar thermal electric power plants	New heat transfer geometry for hydride heat
[SAND-79-0801] 25 p0124 N80-12563	engines and heat pumps
Low-temperature thermal energy storage program	[LA-7822] 25 p0169 N80-15289
annual operating plan	HEAT TRANSMISSION
[ORNL/TM-6605] 25 p0125 N80-12568	Heat flow and heat transfer conditions in the
Performance of Los Alamos solar Mobile/Modular	bottom sediments of the equatorial Indian Ocean
Home Unit no. 1	
[LA-UR-78-2587] 25 p0126 N80-12577	25 p0075 A80-19048
Low-temperature thermal energy storage program	One- and two-dimensional heating analyses of
	fusion synfuel blankets
annual operating plan	[BNL-NUREG-25635] 25 p0104 N80-10922
[ORNL/TM-6934] 25 p0139 N80-13631	Geothermal exploration methods and results:
Case study of the Brownell low energy requirement	Inland states
house	[LA-UR-79-665] 25 p0108 N80-11543
[BNL-50968] 25 p0142 N80-13651	Experimental and analytical OTEC studies at ORNL
Design, construction, and operation of the solar	[CONF-790631-1] 25 p0143 N80-13666
assisted heat pump ground coupled storage	Deep terrestrial heat flow measurements in New
experiments at Brookhaven National Laboratory	Mexico and neighboring geologic areas
[BNL-25908] 25 p0142 N80-13654	[PB-299489/5] 25 p0153 N80-14471
Trans-seasonal storage of solar energy:	HRAT TOPATHOUT
Trans-seasonal storage of solar energy: Innovative research program subtask	BEAT TREATHENT
Innovative research program subtask	HEAT TREATMENT Bogus-type treatment of Cu2S-Cds solar cells using
Innovative research program subtask underground storage	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 M80-13672	BEAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672. Large-scale annual-cycle thermal energy storage in	BEAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  HEATING
Innovative research program subtask underground storage [COO-4546-3] Large-scale annual-cycle thermal energy storage in aquifers	BEAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672. Large-scale annual-cycle thermal energy storage in aquifers [C0NP-790515-3] 25 p0145 N80-13686	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672. Large-scale annual-cycle thermal energy storage in aquifers [CONF-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672. Large-scale annual-cycle thermal energy storage in aquifers [C0NP-790515-3] 25 p0145 N80-13686	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672. Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-EN-845]  25 p0102 N80-10662
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [CONP-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak beating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-EE-845]  User manual for GEOCITY: A computer model for
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [CONP-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672. Large-scale annual-cycle thermal energy storage in aquifers [CONF-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687 A conceptual design study on the application of liquid metal heat transfer technology to the	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-EN-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  25 p0113 N80-11605
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742]  Commercialization strategy report for hydrothermal
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [CONF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672 Large-scale annual-cycle thermal energy storage in aquifers [CONF-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687 A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CE-162544] 25 p0154 N80-14484 Proceedings of the Thermal Energy Storage in	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-EN-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop	BRAT TREATMENT  Bogus-type treatment of Cu2s-Cds solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672 Large-scale annual-cycle thermal energy storage in aquifers [CONF-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687 A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484 Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533 Thermal energy storage for solar applications: An	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28640-DRAFI]  25 p0157 N80-14508
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview	BRAT TREATMENT  Bogus-type treatment of Cu2s-Cds solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFT]  District space heating potential of low
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-EB-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFI]  District space heating potential of low temperature hydrothermal geothermal resources in
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672 Large-scale annual-cycle thermal energy storage in aquifers [CONP-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687 A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484 Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533 Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546 Candidate thermal energy storage technologies for	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFI]  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NP-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-EB-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFI]  District space heating potential of low temperature hydrothermal geothermal resources in
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CE-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFI]  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [CONF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TB-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-EN-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DBAPI]  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CE-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFI]  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NHEI-10-1]  BEATING EQUIPMENT
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TM-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-ER-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DBAPT] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NMEI-10-1] 25 p0172 N80-15582  BRATING EQUIPMENT  Techniques for evaluation of advanced cogeneration
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672 Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687 A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CE-162544] 25 p0154 N80-14484 Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533 Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546 Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560 Low temperature thermal energy storage: A state-of-the-art survey [SERI/RB-54-164] 25 p0172 N80-15583	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-E-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFT]  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NHEI-10-1]  BRATING EQUIPMENT  Techniques for evaluation of advanced cogeneration technologies
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672 Large-scale annual-cycle thermal energy storage in aquifers [CONF-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687 A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484 Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533 Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546 Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TB-81380] 25 p0171 N80-15560 Low temperature thermal energy storage: A state-of-the-art survey [SERI/RB-54-164] 25 p0172 N80-15583 Melting in phase-change thermal storage media	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFI]  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NHEI-10-1]  BEATING EQUIPMENT  Techniques for evaluation of advanced cogeneration technologies
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672 Large-scale annual-cycle thermal energy storage in aquifers [C0NP-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687 A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484 Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533 Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546 Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TM-81380] 25 p0171 N80-15560 Low temperature thermal energy storage: A state-of-the-art survey [SERI/RB-54-164] 25 p0172 N80-15583 Melting in phase-change thermal storage media [C00-2993-1]	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-ER-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAPT] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NELT-10-1] 25 p0172 N80-15582  BRATING EQUIPRENT  Techniques for evaluation of advanced cogeneration technologies  25 p0014 A80-11957  Economy of a retrofit solar system water heating
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CE-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TM-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RR-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [C00-2993-1] Aquifer_thermal energy storage	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-EE-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAPI] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NMEI-10-1] 25 p0172 N80-15582  BEATING EQUIPMENT  Techniques for evaluation of advanced cogeneration technologies 25 p0014 A80-11957  Economy of a retrofit solar system water heating 25 p0171 A80-11984
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672 Large-scale annual-cycle thermal energy storage in aquifers [CONF-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687 A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484 Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533 Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546 Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TB-81380] 25 p0171 N80-15560 Low temperature thermal energy storage: A state-of-the-art survey [SERI/RB-54-164] 25 p0172 N80-15583 Melting in phase-change thermal storage media [COO-2993-1] 25 p0173 N80-15584 Aquifer thermal energy storage [LBL-7070] 25 p0176 N80-15618	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFI]  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NMEI-10-1]  BEATING EQUIPMENT  Techniques for evaluation of advanced cogeneration technologies  25 p0014 A80-11957  Economy of a retrofit solar system water heating 25 p0017 A80-11984  Instrumentation principles for performance
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672 Large-scale annual-cycle thermal energy storage in aquifers [C0NP-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687 A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484 Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533 Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546 Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TM-81380] 25 p0171 N80-15560 Low temperature thermal energy storage: A state-of-the-art survey [SERI/RB-54-164] 25 p0172 N80-15583 Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584 Aquifer thermal energy storage [LBL-7070] 25 p0176 N80-15618	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-ER-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAPT] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NEEL-10-1] 25 p0172 N80-15582  BRATIOS EQUIPRENT Techniques for evaluation of advanced cogeneration technologies  25 p0014 A80-11957  Economy of a retrofit solar system water heating 25 p0017 A80-11984  Instrumentation principles for performance measurement of solar heating systems
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CE-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TM-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RR-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Aquifer thermal energy storage [LBL-7070] 25 p0176 N80-15618  HEMT TRANSPEB  An experimental study of corrugated steel sheet	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-EE-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFI] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NMEI-10-1] 25 p0172 N80-15582  BEATING EQUIPMENT  Techniques for evaluation of advanced cogeneration technologies 25 p0014 A80-11957  Economy of a retrofit solar system water heating 25 p0017 A80-11984  Instrumentation principles for performance measurement of solar heating systems 25 p0020 A80-12432
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [CONF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-1] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TB-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RB-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [COO-2993-1] 25 p0173 N80-15584  Aquifer thermal energy storage [LBL-7070] 25 p0176 N80-15618  HEAT TRANSPER An experimental study of corrugated steel sheet solar water heater	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28640-DRAFT]  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NHEI-10-1]  BEATING EQUIPMENT  Techniques for evaluation of advanced cogeneration technologies  25 p0014 A80-11957  Economy of a retrofit solar system water heating 25 p0017 A80-11984  Instrumentation principles for performance measurement of solar heating systems  25 p0020 A80-12432  An experimental study of corrugated steel sheet
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NP-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RB-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting thermal energy storage [LBL-7070] 25 p0173 N80-15618  HEAT TRANSPER An experimental study of corrugated steel sheet solar water heater	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAPT]  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NHEI-10-1]  BEATTREATMENT  Techniques for evaluation of advanced cogeneration technologies  25 p0017 A80-15582  Brating Equipment  Techniques for evaluation of advanced cogeneration technologies  25 p0017 A80-11984  Instrumentation principles for performance measurement of solar heating systems  25 p0020 A80-12432  An experimental study of corrugated steel sheet solar water heater
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CE-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TM-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RR-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [C00-2993-1] Aquifer thermal energy storage [LBL-7070] 25 p0176 N80-15584  An experimental study of corrugated steel sheet solar water heater 25 p0029 A80-12822  Heat transfer to a melting solid with application	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-EE-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFI] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NHEI-10-1] 25 p0172 N80-15582  BEATING EQUIPMENT  Techniques for evaluation of advanced cogeneration technologies 25 p0014 A80-11957  Economy of a retrofit solar system water heating 25 p0017 A80-11984  Instrumentation principles for performance measurement of solar heating systems 25 p0020 A80-12432  An experimental study of corrugated steel sheet solar water heater
Innovative research program subtask underground storage [COO-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [CONF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-1] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERT/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERT/RB-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [COO-2993-1] 25 p0173 N80-15584  Aquifer thermal energy storage [LBL-7070] 25 p0176 N80-15618  HEAT TRANSFER An experimental study of corrugated steel sheet solar water heater 25 p0C29 A80-12822  Heat transfer to a melting solid with application	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742]  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFI]  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NHEI-10-1]  BEATING EQUIPMENT  Techniques for evaluation of advanced cogeneration technologies  25 p0014 A80-11984  Instrumentation principles for performance measurement of solar heating systems  25 p0029 A80-12822  Results of interdepartmental tests of solar water
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NP-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RB-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0176 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0176 N80-15618  HEAT TRANSPEB  An experimental study of corrugated steel sheet solar water heater  25 p0029 A80-12822  Heat transfer to a melting solid with application to thermal energy storage systems	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DNAPT] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NNEI-10-1] 25 p0172 N80-15582  BRATING EQUIPRENT  Techniques for evaluation of advanced cogeneration technologies  25 p0014 A80-11957  Economy of a retrofit solar system water heating 25 p0017 A80-11984  Instrumentation principles for performance measurement of solar heating systems  25 p0020 A80-12432  An experimental study of corrugated steel sheet solar water heater  25 p0029 A80-12822  Results of interdepartmental tests of solar water heaters over an annual cycle. I
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CE-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TM-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RR-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [C00-2993-1] Aquifer thermal energy storage [LBL-7070] 25 p0176 N80-15584  An experimental study of corrugated steel sheet solar water heater 25 p0029 A80-12822  Heat transfer to a melting solid with application to thermal energy storage systems  Heat exchange fluids and techniques Fook	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAPI] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NMEI-10-1] 25 p0172 N80-15582  BEATING EQUIPMENT  Techniques for evaluation of advanced cogeneration technologies 25 p0017 A80-11957  Economy of a retrofit solar system water heating 25 p0017 A80-11984  Instrumentation principles for performance measurement of solar heating systems 25 p0017 A80-12432  An experimental study of corrugated steel sheet solar water heater 25 p0029 A80-12432  Results of interdepartmental tests of solar water heaters over an annual cycle. I
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NP-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RB-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [C00-2993-1] Aquifer thermal energy storage [LBL-7070] 25 p0176 N80-15618  HEAT TRANSFEB An experimental study of corrugated steel sheet solar water heater 25 p0029 A80-12822  Heat transfer to a melting solid with application to thermal energy storage systems 25 p0036 A80-14667  Heat exchange fluids and techniques Eook	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DNAPT] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NNEI-10-1] 25 p0172 N80-15582  BRATING EQUIPRENT  Techniques for evaluation of advanced cogeneration technologies  25 p0014 A80-11957  Economy of a retrofit solar system water heating 25 p0017 A80-11984  Instrumentation principles for performance measurement of solar heating systems  25 p0020 A80-12432  An experimental study of corrugated steel sheet solar water heater  25 p0029 A80-12822  Results of interdepartmental tests of solar water heaters over an annual cycle. I
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NP-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RB-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0178 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0176 N80-15618  HEAT TRANSPER  An experimental study of corrugated steel sheet solar water heater  25 p0029 A80-12822  Heat transfer to a melting solid with application to thermal energy storage systems  25 p0036 A80-14667  Heat exchange fluids and techniques Eook 25 p0041 A80-15659  Osmotically pumped energy transport system	BRAT TREATMENT  Bogus-type treatment of Cu2s-Cds solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DBAPT] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NNEI-10-1] 25 p0172 N80-15582  BRATING EQUIPRENT  Techniques for evaluation of advanced cogeneration technologies  25 p0014 A80-11957  Economy of a retrofit solar system water heating 25 p0017 A80-11984  Instrumentation principles for performance measurement of solar heating systems  25 p0020 A80-12432  An experimental study of corrugated steel sheet solar water heater  25 p0029 A80-12822  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Optimal control studies of a solar heating system  [LA-UR-78-2556] 25 p0100 N80-10646
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CE-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RR-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Aquifer thermal energy storage [LBL-7070] 25 p0176 N80-15618  HEAT TRANSPEB An experimental study of corrugated steel sheet solar water heater 25 p0029 A80-12822  Heat transfer to a melting solid with application to thermal energy storage systems 25 p0036 A80-14667  Heat exchange fluids and techniques Fook 25 p0041 A80-15659  Osmotically pumped energy transport system [AIAA PAPER 80-0210] 25 p0064 A80-18378	BRAT TREATMENT  Bogus-type treatment of Cu2s-Cds solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DBAPT] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NNEI-10-1] 25 p0172 N80-15582  BRATING EQUIPRENT  Techniques for evaluation of advanced cogeneration technologies  25 p0014 A80-11957  Economy of a retrofit solar system water heating 25 p0017 A80-11984  Instrumentation principles for performance measurement of solar heating systems  25 p0020 A80-12432  An experimental study of corrugated steel sheet solar water heater  25 p0029 A80-12822  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Optimal control studies of a solar heating system  [LA-UR-78-2556] 25 p0100 N80-10646
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NP-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RB-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0178 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Melting in phase-change thermal storage media [C00-2993-1] 25 p0176 N80-15618  HEAT TRANSPER  An experimental study of corrugated steel sheet solar water heater  25 p0029 A80-12822  Heat transfer to a melting solid with application to thermal energy storage systems  25 p0036 A80-14667  Heat exchange fluids and techniques Eook 25 p0041 A80-15659  Osmotically pumped energy transport system	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-EE-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DRAFT] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NHEI-10-1] 25 p0172 N80-15582  BEATING EQUIPMENT  Techniques for evaluation of advanced cogeneration technologies 25 p0017 A80-11957  Economy of a retrofit solar system water heating 25 p0017 A80-11984  Instrumentation principles for performance measurement of solar heating systems 25 p0020 A80-12432  An experimental study of corrugated steel sheet solar water heater 25 p0029 A80-12822  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Optimal control studies of a solar heating system [LA-UR-78-2556] 25 p0100 N80-10646  Optimal insulation of pipes and tanks for solar
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672.  Large-scale annual-cycle thermal energy storage in aquifers [C0NF-790515-3] 25 p0145 N80-13686  Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687  A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CE-162544] 25 p0154 N80-14484  Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533  Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546  Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RR-54-164] 25 p0172 N80-15583  Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584  Aquifer thermal energy storage [LBL-7070] 25 p0176 N80-15618  HEAT TRANSPEB An experimental study of corrugated steel sheet solar water heater 25 p0029 A80-12822  Heat transfer to a melting solid with application to thermal energy storage systems 25 p0036 A80-14667  Heat exchange fluids and techniques Fook 25 p0041 A80-15659  Osmotically pumped energy transport system [AIAA PAPER 80-0210] 25 p0064 A80-18378	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EPRI-ER-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNI-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28640-DRAFT] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NHEI-10-1] 25 p0172 N80-15582  BEATING EQUIPMENT  Techniques for evaluation of advanced cogeneration technologies  25 p0114 A80-11957  Economy of a retrofit solar system water heating 25 p0174 R80-11984  Instrumentation principles for performance measurement of solar heating systems  25 p0029 A80-12822  Results of interdepartmental tests of solar water heater  25 p0051 A80-17245  Optimal control studies of a solar heating system  [LA-UR-78-2556] 25 p0100 N80-10646  Optimal insulation of pipes and tanks for solar heating systems
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672 Large-scale annual-cycle thermal energy storage in aquifers [C0NP-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687 A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484 Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533 Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546 Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560 Low temperature thermal energy storage: A state-of-the-art survey [SERI/RB-54-164] 25 p0172 N80-15583 Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584 Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584 Hell-7070] 25 p0173 N80-15618 HEAT TRANSFER An experimental study of corrugated steel sheet solar water heater 25 p0029 A80-12822 Heat transfer to a melting solid with application to thermal energy storage systems 25 p0036 A80-14667 Heat exchange fluids and techniques Fook 25 p0041 A80-15659 Osmotically pumped energy transport system [AIAA PAPER 80-0210] 25 p0064 A80-18378 Performance testing of a hydrogen heat pipe [AIAA PAPER 80-0212] 25 p0064 A80-18379	BRAT TREATMENT  Bogus-type treatment of Cu2s-Cds solar cells using deposition from solution  25 p0028 A80-12788  BRATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28840-DBAPT] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NNEI-10-1] 25 p0172 N80-15582  BRATING EQUIPRENT  Techniques for evaluation of advanced cogeneration technologies  25 p0014 A80-11957  Economy of a retrofit solar system water heating 25 p0017 A80-11984  Instrumentation principles for performance measurement of solar heating systems  25 p0020 A80-12432  An experimental study of corrugated steel sheet solar water heater  25 p0020 A80-12432  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Optimal control studies of a solar heating system [LA-UB-78-2556] 25 p0100 N80-10646  Optimal insulation of pipes and tanks for solar heating systems  [ALO-5319-2] 25 p0102 N80-10660
Innovative research program subtask underground storage [C00-4546-3] 25 p0144 N80-13672 Large-scale annual-cycle thermal energy storage in aquifers [C0NP-790515-3] 25 p0145 N80-13686 Cost analysis of packed beds for thermal energy storage [CAES-11] 25 p0145 N80-13687 A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant [NASA-CB-162544] 25 p0154 N80-14484 Proceedings of the Thermal Energy Storage in Aquifers Workshop [LBL-8431] 25 p0160 N80-14533 Thermal energy storage for solar applications: An overview [SERT/TP-34-089] 25 p0161 N80-14546 Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TH-81380] 25 p0171 N80-15560 Low temperature thermal energy storage: A state-of-the-art survey [SERT/RB-54-164] 25 p0172 N80-15583 Melting in phase-change thermal storage media [C00-2993-1] 25 p0173 N80-15584 Anetring in phase-change thermal storage media [C00-2993-1] 25 p0176 N80-15618 HEAT TRANSFEB An experimental study of corrugated steel sheet solar water heater 25 p0029 A80-12822 Heat transfer to a melting solid with application to thermal energy storage systems 25 p0036 A80-14667 Heat exchange fluids and techniques Fook 25 p0041 A80-15659 Osmotically pumped energy transport system [AIAA PAPER 80-0210] Performance testing of a hydrogen heat pire	BRAT TREATMENT  Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution  25 p0028 A80-12788  BEATING  Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump  [EFRI-ER-845] 25 p0102 N80-10662  User manual for GEOCITY: A computer model for geothermal district heating cost analysis  [PNL-2742] 25 p0113 N80-11605  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation  [TID-28640-DRAFT] 25 p0157 N80-14508  District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States using computerized simulation  [NHEI-10-1] 25 p0172 N80-15582  BEATING EQUIPMENT  Techniques for evaluation of advanced cogeneration technologies  25 p0014 A80-11957  Economy of a retrofit solar system water heating 25 p0172 N80-11984  Instrumentation principles for performance measurement of solar heating systems  25 p0029 A80-12822  Results of interdepartmental tests of solar water heater  25 p0029 A80-12822  Results of interdepartmental tests of solar water heaters over an annual cycle. I  Optimal control studies of a solar heating system  [LA-UR-78-2556] 25 p0100 N80-10646  Optimal insulation of pipes and tanks for solar heating systems

SUBJECT INDEX BYDRATES

Emissions assessment of conventional stationary HIGH POWER LASERS combustion systems. Volume 1: Gas- and oil-fired residential heating sources CO2 electric discharge lasers - Present status and future applications 25 p0039 A80-14960 Evidence of nonlinear processes from X-ray spectra of CO2 laser-irradiated targets [PB-298494/6] 25 p0 131 N80-12637 Intermediate report on the performance of plate-type ice-maker heat pumps [ORNL/CCH-23] 25 p0176 N80-15619 Recent progress in inertial confinement fusion research at the Los Alamos Scientific Laboratory HEAVY IONS The United States programme in heavy ion beam fusion 25 p0058 A80-17873 25 p0056 A80-17862 HELIOSTATS HIGH PRESSURE Color graphic controls for the solar central receiver test facility 170 MW pressurized fluidized bed combustion electric plant 25 p0022 A80-12626 25 p0014 A80-11962 Heliostat Beam Characterization System --computerized video radiometer technique for Activity tests of various catalysts for hydrocracking of coal by means of high pressure differential thermal analysis solar collector 25 p0022 A80-12627 Calculation of the optical characteristics of 25 p0019 A80-12244 HIGH STRENGTH ALLOYS high-power two-mirror solar furnaces Evaluation of high chromium overplays to protect 25 p0044 A80-16629 less alloyed substrates from corrosion in a coal Algorithm for calculating the shading and blocking of the heliostats of a solar electric power plant 25 p0051 A80-17246
Structure of an averaged statistical pencil of rays reflected from a heliostat

25 p0051 A80-17247 gasification atmosphere FE-2621-31 25 p0119 N80-12163 HIGH TEMPERATURE The KMSP laser fusion programme 25 p0056 A80-17860 High temperature electrolysis --- synthetic fuel SHADE - A computer model for evaluating the optical performance of two-axis tracking parabolic concentrators production
[BNL-26331]
HIGH TEMPERATURE GASES 25 p0167 N80-15227 parabolic concentrators
[ASBE PAPER 79-WA/SOL-13] 25 p0068 A80-18
Solar thermal central receiver systems
[ASBE PAPER 79-WA/HT-38] 25 p0070 A80-18
The 10MW(e) solar thermal central receiver pilot
plant: Heliostat foundation and interface exchanger for a gas turbine engine
25 p0003 A80-10613 25 p0068 A80-18581 Selection of optimal parameters of heat-pipe heat 25 p0070 A80-18596 Start up system for hydrogen generator used with an internal combustion engine structure investigation [SAND-78-8180] [ NASA-CASE-NPO-13849-1] 25 p0092 N80-10374 25 p0097 N80-10612 Hot gas cleanup [ICTIS/TR-03] Solar-powered steam generator heliostat 25 p0117 N80-11647 25 p0129 N80-12610 HIGH TEMPERATURE PLASMAS [BNL-50974] Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 #80-13 End plugging of a hot linear theta pinch 25 p0055 A80-17824 25 p0140 N80-13642 Solar central receiver prototype heliostat CDRL Coal-fired open cycle MHD combustion plasmas -Chemical equilibrium and transport properties item B.D., volume 1 [SAN-1605/7-VOL-1] WORKSHOF TESUITS
[AIAA PAPER 80-0091]
HIGH TEMPERATURE RESEARCH 25 p0146 N80-13700 HELION 25 p0063 A80-18265 The helium question --- future domestic consumption vs storage of current natural gas derived supplies Microstructural objectives for high-temperature alloys in advanced energy systems 25 p0034 A80-13589 Influence of the working fluid on heat transfer .25 p0002 A80-10306 HIGH TEMPERATURE TESTS program to discover materials suitable for service under hostile conditions obtaining in equipment and layout of solar tower receivers 25 p0036 A80-14671 Helium penetration in evacuated solar collectors for the gasification of coal and other solid fuels
[PE-1784-42] 25 p0106 N80-11248 Theory and effect on their performance [ASME PAPER 79-WA/SOL-17] 25 p00 25 p0066 A80-18563 HIGH VOLTAGES HERMETIC SEALS High-voltage multijunction solar cell Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices 25 p0035 A80-14593 New technology and vehicle operation on roadways 25 p0037 A80-14702 25 p0051 A80-17244 HETEROJUNCTION DEVICES HISTORIES Toward the endless frontier: History of the Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994 GaAs-electrolyte photovoltaic cells 25 p0026 A80-12774 Efficient indium tim oxide/polycrystalline silicon solar cells HOMOPOLAR GENERATORS 25 p0039 A80-15136 Power supply requirements for a tokamak fusion The A-I/1-y/B-I/y/C-IIID-VI/2x/E-VI2/1-x/
pentenary alloy system and its application to photovoltaic solar energy conversion 25 p0003 A80-10474 Power supply requirements for a tokamak fusion 25 p0046 A80-16786 reactor A theoretical evaluation and optimization of the [ANL/FPF/TM-119] 25 p0104 N80-10918 radiation resistance of gallium arsenide solar-cell structures BOT BLECTRONS Experimental studies of interaction and transport processes in laser fusion 25 p0046 A80-16794 Measurements of minority-carrier diffusion length in heterojunction solar cells 25 p0057 A80-17864 HUMAN FACTORS ENGINEERING 25 p0086 A80-20717 International activities: The fiscal year 1978 survey of international programs at NEL Analysis and evaluation of isotype heterojunction [PB-300491/8] solar cells 25 p0181 N80-16004 25 p0087 A80-20734 HYBRID PROPULSION Hydrogen-electric power drives [SLAC-PUB-2203] HIGH CURRENT Relativistic high-current microwave plasma 25 p0113 N80-11604 electronics HYDRATES 25 p0083 A80-19847 An incongruent heat-of-fusion system - CaCl2-6B20 HIGH FIBLD MAGNETS made congruent through modification of the chemical composition of the system --- during Space applications of superconductivity - High field magnets melting 25 p0084 A80-20128 25 p0029 A80-12823

BYDRAULIC EQUIPMENT  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model	Ethanol/gasoline blends as automotive fuels [CONP-790520-5] 25 p0168 N80-15280 HYDROCARBORS
[PB-297274/3] 25 p0 108 N80-11551 HYDRIDRS	Unleaded gasoline shortages and fuel switching - The potential impact in Southern California
Design and development of a 30 watt solid polymer electrolyte fuel cell power source fueled with calcium bydride	25 p0004 A80-11019 Remote sensing of LNG spill vapor dispersion using Raman LIDAR
[AD-A071157] 25 p0139 N80-13625 HYDROCARBON COMBUSTION Low NO(x) heavy fuel combustor program	[OCRL-13984] 25 p0103 N80-10689 The analysis of sediment samples for hydrocarbons [AD-A073822] 25 r0149 N80-13754
[NASA-TM-79313] 25 p0 138 N80-13624 Pundamental and semi-global kinetic mechanisms of	Petrochemicals: Their economic significance in the domestic economy
hydrocarbon combustion models for environmentally clean power plant design [COO-4272-3] 25 p0165 N80-14587	[PB-299733/6] 25 p0181 M80-15992 HYDROCBACKING Activity tests of various catalysts for
HYDROCARBON FUEL PRODUCTION  The photo-electrochemical production of C-C bonds from carbon dioxide	hydrocracking of coal by means of high pressure differential thermal analysis 25 p0019 A80-12244
25 p0004 A80-10848 SRC solids - Boiler fuel and building block Solvent Refined Coal	An update of German non-isothermal coal pyrolysis work 25 p0019 A80-12245
25 p0015 &80-11967 SRC solids - A preferred compliance boiler fuel Solvent Refined Coal	Status of the PRATGAS process [CONF-781045-3] 25 p0120 N80-12199 HYDROBLECTRIC POWER STATIONS
25 p0015 A80-11968 Pelletized wood /Woodex/ - Applications and potential from biomass waste products 25 p0017 A80-11981	<pre>Energy-storage systems pumped-storage   hydroelectric plants, compressed-air   energy-storage plants, electric batteries and</pre>
Progress in R and D on coal liquefaction - Progress in research-development on coal liquefaction	hot water storage 25 r0034 A80-13513 Global options for short-range alternative energy
25 p0030 A80-12940 The role of coal gasification and liquefaction in	strategies 25 p0048 A80-17129 The application potential of hydro power
improving the efficiency of energy use - Comparative end use efficiency of the use of coal: Substitute natural gas and other gases	25 p0049 A80-17136 Utilization of ocean heat for hydrogen production 25 p0086 A80-20686
versus electric power production 25 p0030 A80-12941 Coal as a source of chemical raw materials -	Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model [FB-297274/3] 25 p0108 N80-11551
Prospects for chemical synthesis based on gas from coal 25 p0031 A80-12944	Solar thermal electric plants in hydroelectric grid Lower Colorado region
Progress and development trends in coal gasification and liquefaction technologies - New gasification methods developed on a laboratory or large scale	[DOE/SF/10505-1] 25 p0143 N80-13663  Fundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02] 25 p0143 N80-13667  Turbomachinery options for an underground pumped
25 p0031 A80-12946 Gasoline's alternatives are feasible	hydroelectric storage plant [CONF-790803-50] 25 p0177 N80-15629
25 p0034 A80-13225 Methane fermentation of aquatic biomass 25 p0043 A80-16148	Energy program at the Johns Hopkins University Applied Physics Laboratory [PB-310245/7] 25 p0179 N80-15648
Technical possibilities and economic prospects for coal refining	HYDROGEN Ablation of solid hydrogen in a plasma
25 p0043 A80-16175 Petroleum plantations and synthetic chloroplasts 25 p0049 A80-17137	25 p0050 A80-17218 Results of duct area ratio changes in the NASA Lewis H2-02 combustion MHD experiment
Ethyl alcohol production and use as a motor fuel Book 25 p005C A80-17241	[NASA-TM-79308] 25 p0132 N80-12881 Hydrogen-halogen energy storage system
The controlling production mechanism of methane gas from coalbeds 25 p0085 A80-20499	Analysis of hydrogen in solids technology assessment of ways to analyze hydrogen for
Molten salt pyrolysis of latex for hydrocarbon fuel production	hydrogen based energy and hydrogen production [DDE/ER-0026] 25 p0167 N80-15220 HYDROGEN ATOMS
[NASA-CASE-NPO-14315-1] 25 p0092 N80-10361 Conversion of cellulosic and waste polymer material to gasoline	Are large concentration of atomic E storable in tritium-impregnated solid in H2 below 0.10 K 25 p0072 A80-18728
[COO-2982-38] 25 p0169 N80-15291 HYDROCARBON FURLS An engine fuel chemistry solution to the problem	HYDROGEN CHLORIDES  Measurement of gaseous hydrogen chloride emissions from municipal refuse energy recovery systems in
of jet fuel suprlies 25 p0C01 A80-10199 Properties of gases and petroleum liguids derived	the United States 25 p0019 A80-12128
from terrestrial kerogen at various maturation levels	HYDROGEN ENGINES Hydrogen-powered vs. battery-powered automobiles 25 p0033 A80-13199
25 p0073 A80-18832  Molten salt pyrolysis of latex for hydrocarbon fuel production	New heat transfer geometry for hydride heat engines and heat pumps [LA-7822] 25 p0169 N80-15289
[NASA-CASE-NF0-14315-1] 25 p0C92 N80-10361. Characterization and combustion of SRC 2 fuel oil [EPRI-FF-1028] 25 p0119 N80-12192	HYDROGEN FUELS  Hydrogen - The fuel of the future Russian book
Environmental aspects of alternative fuels utilization for highway vehicles [UCBL-81841] 25 p0120 N80-12201	25 p0002 M80-10349  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures
Fundamental and semi-global kinetic mechanisms of hydrocarbon combustion models for environmentally clean power plant design [COO-4272-3] 25 p0165 N80-14587	25 p0008 A80-11816 Thermodynamic and structural properties of LaNi/5-y/Aly compounds and their related hydrides 25 p0033 A80-13200

SUBJECT IBDEX BYDROGEN-BASED BERRGY

Gasoline's alternatives are feasible 25 p0034 A80-13225	Introduction - A review of the scope solar-hydrogen energy conversion
Hydrogen fuel applications for urban transit 25 p0037 A80-14703	25 p0052 A80-17574 Thermodynamics of water-splitting for hydrogen
Technico economic study of the use of hydrogen and	production 25 p0052 A80-17575
methanol for road transport 25 p0042 A80-15993 Results of duct area ratio changes in the NASA	Water electrolysis for hydrogen production 25 p0052 A80-17576
Lewis H2-02 combustion HHD experiment [AIAA PAPER 80-0023] 25 p0063 A80-18243	Direct thermal decomposition of water 25 p0052 A80-17577
Mach 3 hydrogen external/base burning [AIAA PAPER 80-0280] 25 p0077 A80-19311	Thermochemical hydrogen production 25 p0052 A80-17578
Survey of liquid hydrogen container techniques for highway vehicle fuel system applications	Photochemical hydrogen production 25 p0052 A80-17579
[HCP/M2752-01] 25 p0092 N80-10383 Applications analysis of fixed site hydrogen storage	Photoelectrochemical hydrogen production 25 p0052 A80-17580
[SAND-78-8272] 25 p0092 N80-10384 Hydrogen as a fuel. Citations from the	Biological and biochemical hydrogen production 25 p0053 A80-17581
international aerospace abstracts data base [NTIS/PS-79/0771/0] 25 p0094 N80-10397	Solar energy storage by metal hydride 25 p0053 A80-17582
Hydrogen-electric power drives	Direct solar energy conversion at sea
[SLAC-PUB-2203] 25 p0113 N80-11604 The future role of hydrogen fuel in an electrical	25 p0053 A80-17583 Bydrogen and oxygen from water. II - Some
society [UTIAS-241] 25 p0119 N80-12189	considerations in the reduction of the idea to practice
Liquid hydrogen as an automotive fuel [LA-UR-79-621] 25 p0136 N80-13297	25 p0078 A80-19473 Utilization of ocean heat for hydrogen production
Critical review and assessment of environmental	25 p0086 A80-20686 Start up system for hydrogen generator used with
and safety problems in hydrogen energy systems [LA-7820-PR] 25 p0145 N80-13690	an internal combustion engine
HYDROGEN IONS	[NASA-CASE-NPO-13849-1] 25 p0092 N80-10374 Hydrogen production. Citations from the
Construction and test of a high power injector of hydrogen cluster ions	international aerospace abstracts data base
25 p0080 A80-19618	[NTIS/PS-79/0773/6] 25 p0094 N80-10401 One- and two-dimensional heating analyses of
HYDROGEN ISOTOPES A simple model describing hydrogen re-cycling in	fusion synfuel blankets
fusion experiments and its influence on	[BNL-NUREG-25635] 25 p0104 N80-10922 Economics of hydrogen production and liquefaction
discharge behaviour 25 p0022 180-12453	updated to 1980
Investigations of isotope separation effects of a Ti-fluidized bed	[NASA-CR-159163] 25 p0106 N80-11238 LASL thermochemical hydrogen program status on
25 p0082 A80-19669	October 31, 1978 fusion-synfuel
HYDROGEN OXIGEN PUEL CELLS	[LA-UE-78-2895] 25 p0120 N80-12197 Process design of the LASL bismuth sulfate
Design and development of a 30 watt solid polymer electrolyte fuel cell power source fueled with calcium hydride	thermochemical hydrogen cycle [IA-UB-79-1256] 25 p0129 M80-12605
[AD-A071157] 25 p0139 N80-13625	Synfuel (hydrogen) production from fusion power
HYDROGEN PLASHA Behavior of SORB-AC wafer pumps in contaminated H2	[LA-UR-79-1115] 25 p0136 N80-13296 Development of the steam-iron process for hydrogen
plasmas and during maintenance of plasma machines	production, 9010 [FE-2435-32] 25 p0150 N80-14258
HYDROGEN PRODUCTION 25 p0082 A80-19672	[FE-2435-32] 25 p0150 N80-14258 Experimental verification of the mercury-iodine
A mathematical model for a future hydrogen power	thermochemical cycle for the production of hydrogen from water, ANL-4
system 25 p0001 A80-10223	[CCNF-780807-11] 25 p0150 N80-14265
The turnover times and pool sizes of photosynthetic hydrogen production by green algae	Process design and economic analysis of the Zinc selenide thermochemical hydrogen cycle
25 p0029 A80-12819	[UCRL-52546] 25 p0164 N80-14571
Hydrogen evolution from water using solid carbon and light energy	Analysis of hydrogen in solids technology assessment of ways to analyze hydrogen for
25 p0032 A80-13109	hydrogen based energy and hydrogen production
The R&D programme of the European communities in the field of hydrogen - Progress and results	[DCE/EB-0026] 25 p0167 N80-15220 Pusion energy for hydrogen production systems
25 p0032 <u>A80-13195</u>	engineering of a process for hydrogen production
Water splitting reaction on a polynaphthoguinone catalyst - A polynaphthoguinone-So2-I2 system	from nuclear fusion [BNL-24906] 25 p0180 N80-15897
for H2O decomposition 25 p0032 A80-13196	HYDROGEE RECOMBINATIONS  Elucidation of coal structural components by short
Microbial hydrogen production from replenishable resources	residence-time extractive liquefaction 25 p0119 N80-12188
25 p0032 A80-13197	HYDROGEN SULFIDE
Photophysical and chemical processes affecting the stability of the thiazine dye-iron system in	Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere
hydrogen production 25 p0033 A80-13198	25 p0085 A80-20454 Dynamic modeling of H2S clean-up processes in
Coulombic effects in the quenching of photoexcited Tris/2,2'-bipyridine/ruthenium/II/ and related	coal gasification 25 p0088 A80-20885
complexes by methyl viologen electron	Environmental overview of geothernal development: The Geysers-Calistoga KGRA. Volume 1: Issues
transfer reactions in solar energy conversion processes	and recommendations
25 p0040 A80-15358	[UCRL-52496-VOL-1] 25 p0177 N80-15626
Seminar on Hydrogen as an Energy Vector: Its Production, Use and Transportation, 1st,	HYDROGEN-BASED ENERGY A mathematical model for a future hydrogen power
Brussels, Belgium, October 3, 4, 1978, Proceedings	system . 25 p0001 A80-10223
25 p0041 A80-15976 Solar-hydrogen energy systems Book	Hydrogen /Hydride/-air secondary battery
25 p0.051 A80-17573	25 p0011 A80-11848

Hydrogen - A means of integrating competing technology into a unified energy system	ILLUMIHANCE Photoelectric parameters of photoelectric
25 p0014 A80-11955	converters in relation to illumination
The R&D programme of the European communities in the field of hydrogen - Progress and results	IMAGE PROCESSING 25 p0044 A80-16627
25 p0032 A80-13195  Hydrogen-powered vs. battery-powered automobiles	X-ray measurement of laser fusion targets using least squares fitting
25 p0033 A80-13199 Hydrogen - The Denver story	25 p0060 A80-18110
25 p0C38 A80-14709 Seminar on Hydrogen as an Energy Vector: Its	First experiences with the use of impactors in large power plants
Production, Use and Transportation, 1st, Brussels, Belgium, October 3, 4, 1978, Proceedings 25 p0041 A80-15976	25 p0074 A80-18859 Experiences with the practical use of an Andersen cascade impactor in the exhaust gas of various
Hydrogen storage by means of reversible magnesium alloy	industrial sites 25 p0074 &80-18861
25 p0041 A80-15990 Use of reversible hydrides for hydrogen storage 25 p0042 A80-15991	IMPEDANCE MATCHING Theoretical consideration of curve fill factor in solar cells
Hydrogen storage by use of cryoadsorbents in comparison to alternatives	25 p0026 A80-12768 Power loss in photovoltaic arrays due to mismatch
25 p0042 A80-15992 Solar-hydrogen energy systems Book	in cell characteristics 25 p0028 A80-12815
25 p0051 A80-17573 Introduction - A review of the scope	IMPERIAL VALLEY (CA) Seismic refraction investigation of the Salton Sea
solar-hydrogen energy conversion 25 p0052 A80-17574	geothermal area, Imperial Valley, California [FB-296547/3] 25 p0118 N80-11711
Performance testing of a hydrogen heat pipe [AIAA PAPER 80-0212] 25 p0C64 A80-18379	Identification of environmental control technologies for geothermal development in the
Are large concentration of atomic H storable in tritium-impregnated solid in H2 below 0.10 K 25 p0072 A80-18728	Imperial Valley of California [UCBL-52548] 25 p0179 N80-15668 IMPLOSIONS
Hydrogen storage as a hydride. Citations from the	The KMSF laser fusion programme
international aerospace abstracts data base [NTIS/PS-79/0772/8] 25 p0094 N80-10402	25 p0056 A80-17860 Work on laser interaction and implosion at Centre
Proceedings of the DOE chemical/hydrogen energy contractor review systems [CONF-771131] 25 p0164 N80-14572	d'Etudes de Limeil 25 p0057 A80-17863 Inertial confinement fusion research at Osaka
Analysis of hydrogen in solids technology	25 p0057 A80-17868
assessment of ways to analyze hydrogen for hydrogen based energy and hydrogen production	Nuclear fusion by cylindrical ion implosion 25 p0058 A80-17874
[DOE/ER-0026] 25 p0167 N80-15220	Optimization of stabilized imploding liner fusion
Current German developments in coal liquefaction	reactois 25 p0079 A80-19593
technology 25 p0015 A80-11965	IMPURITIES Accumulation of impurities and stability behaviour
Catalysis of hydrogen transfer in a tetralin-coal system	in the high-density regime of Pulsator 25 p0054 A80-17759
25 p0019 A80-12246 Research and development of rapid hydrogenation	INCENTIVE TECHNIQUES Implementation of state solar incentives: Land-use
for coal conversion to synthetic motor fuels	planning to ensure solar access
(riser cracking of coal) [PB-2307-46] 25 p0134 N80-13280	[SERI/TH-51-163] 25 p0158 N80-14519 Implementation of state solar incentives: A
Catalyst development for coal liquefaction [EPRI-AF-1084] 25 p0136 N80-13292	preliminary assessment [SERI/TR-51-159] 25 p0158 x80-14520
HYDROLYSIS	INCENTIVES
Coal conversion in flash hydropyrolysis reactors [BNL-26209] 25 p0136 N80-13294	Photovoltaic incentives options [HCP/CS-0023] 25 p0162 N80-14561
Process design and economic analysis of the zinc selenide thermochemical hydrogen cycle	INDEXES (DOCUMENTATION)  Energy information data base. Corporate author
[UCRL-52546] 25 p0 164 h80-14571 HYDROSTATIC PRESSURE	entries [DOE/TIC-4585-R1-SUPPL-1] 25 p0097 N80-10617
Geopressure energy resource evaluation Texas	NASA authorization for fiscal year 1980. Part 4:
and Louisiana [ORNL/PPA-79/2] 25 p0 138 N80-13605	Index [GPO-51-336] 25 p0104 B80-10964
HYGROSCOPICITY  Physical properties of gasoline/alcohol automotive	National environmental/energy workshor assessment, phase 3. Energy programs directory of
fuels [CONF-790520-4] 25 p0134 N80-13273	courses available [PB-298587/7] 25 p0117 N80-11634 A manual for cataloging and indexing documents
1	geothermal energy data base [LBL-4432-BEV-1] 25 p0118 N80-11946
ICE FORMATION	World energy data system (WENDS). Volume 8:
Intermediate report on the performance of plate-type ice-maker heat pumps	Nuclear facility profiles, CO-HU [ANL-PHS-79-2-VOL-8] 25 p0139 N80-13630
[ORNL/CON-23] 25 p0176 N80-15619	INDIA Solar energy for rural development; Proceedings of
INEL geothermal environmental program [TRIE-1340] 25 p0112 N80-11595	the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978
IGHITION TEMPERATURE Minimum ignition energies and quenching distances of methanol blends	25 p0023 &80-12739 Solar energy availability over India for maximum utilisation
25 p0004 A80-11331	25 p0023 A80-12740 Programme and progress of DST sponsored solar
Ignitron switching problems associated with a large reversed field pinch experiment	photovoltaic work in India
25 p0081 A80-19629	25 p0025 A80-12760 Industrial applications of solar energy in India 25 p0027 A80-12780

## SUBJECT INDEX

INDIUM COMPOUNDS The semiconductor-insulator-semico tin oxide on silicon/ solar cell		The 1985, 1990 and 1995 midterm e model results under three scena Act regulations	
Characteristics and loss mechani		[ COE/RÍA-0182/2 ] INDUSTRIAL MANAGEMENT	25 p0173 N80-15592
Optical and electrical investigati indium oxide selective coatings spray pyrolysis		Materials resource requirements a limitations in solar energy pro	
	25 p0023 &80-12747	The financing problems of Europe	
The A-I/1-y/B-I/y/C-IIID-VI/2x/E-V pentenary alloy system and its a photovoltaic solar energy conver INDUCTION MOTORS	pplication to	Energy conservation: Policy issu scenarios of savings potential. barriers and investment decisio [LBL-7896-PT-3] INDUSTRIAL PLANTS	Part 3: Folicy
Induction and synchronous machines axis wind turbines	for vertical	Combustion of anthracite culm in boiler	a fluidized bed
	25 p0144 N80-13675	Influence of the working fluid on	25 p0014 A80-11959 heat transfer
Techniques for evaluation of advan 'technologies		and layout of solar tower recei	25 p0036 A80-14671
Low/medium BTO coal gasification - the gas industry	- ·	Novel power generation cycles usi [ASME PAPER 79-WA/ENER-5] Experiences with the practical us	25 p0071 A80-18645 e of an Andersen
Commercial building and industrial for solar energy		cascade impactor in the exhaust industrial sites	25 p0074 A80-18861
Industrial solar total energy syst	25 p0017 A80-11987	<pre>Meteorological effects of oil ref   in Los Angeles   [PB-300720/0]</pre>	inery operations 25 p0180 %80-15758
Near-term prospects for solar indu heat		IMDUSTRIAL WASTES Source, supply and nature of muni	cipal and
Industrial applications of solar e	25 p0018 A80-11988 energy in India 25 p0027 A80-12780	industrial waste as a fuel  Ambient air measurements of petro	25 p0017 A80-11983
Progress in R and D on coal liquef Progress in research-development	action -	emissions	25 p0018 A80-11992
liquefaction	25 p0030 A80-12940	Energy development vs water quali Colorado and upper Missouri Biv [LA-7497-MS]	er Basins
Heat and electricity from the sun dish collector systems	25 p0037 A80-14706	Energy conservation through point with high temperature hyperfilt	
Application of solar and fuel cell industrial users	technology to	textile industry [FB-299183/4]	25 p0180 N80-15688
Economic comparisons of solar and energy systems for industrial ap		INDUSTRIES  SEASAT demonstration experiments oil, gas and mining industries	with the offshore
	25 p0065 A80-18552	[NASA-CR-162423] Transfer of energy conservation t industry. A preliminary survey	
Development of combustion data to gases as industrial process fuel		mechanisms [ANL/EES-TM-28] Preliminary assessment of industr	25 p0111 %80-11576 ial needs for an
61004 special report no. 4: High-forward-momentum burner [PE-2489-33]	25 p0093 N80-10390	advanced ocean technology [NASA-CE-162435] INERT ATMOSPHERE	25 p0118 N80-11747
Department of Energy workshops on energy conservation reporting		Adsorption of hydrogen sulfide in in an inert atmosphere	shale retorted
[DOE/CS-1830-T3] Solar generation of industrial ste	25 p0099 N80-10635 eam. Innovative	INERTIAL FUSION (REACTOR)	25 p0085 A80-20454
research program subtask [COO-4546-9] Microwave heating: Industrial app	25 p0101 N80-10656	Status of inertial confinement fu	. 25 p0016 A80-11976
Citations from the engineering of [NTIS/PS-79/0632/4]	lata base 25 p0102 N80-10674	pulsed power particle beam fusi	
	25 p0111 N80-11579	Inertial confinement fusion at NR	25 p0056 A80-17861
Energy conservation: Policy issue scenarios of savings potential. barriers and investment decision	Part 3: Policy os in industry	Recent progress in inertial confi research at the Los Alamos Scie	ntific Laboratory 25 p0056 A80-17862
<pre>[LBL-7896-PT-3] Effects of energy policy on indust [USFFE-1978-8]</pre>	25 p0114 N80-11614 try 25 p0129 N80-12604	Experimental studies of interacti processes in laser fusion	on and transport 25 p0057 A80-17864
Process optimization of industrial [BNL-26482]		Developments in Sandia Laboratori fusion programme	
Technology development needs for beat		Inertial confinement fusion resea	
[SERI/TR-35-047] Industrial applications of advance [CONF-790602-54]	25 p0143 N80-13669 ed energy systems 25 p0147 N80-13708	The United States programme in he	25 p0057 A80-17868 avy ion beam fusion 25 p0058 A80-17873
Energy conservation in the US econ increased recycle of obsolete st	nomy from	Nuclear fusion by cylindrical ion	
[COO-2893-10] Candidate thermal energy storage to solar industrial process heat an [NASA-TH-81380]	25 p0159 N80-14524 technologies for	Calculations of inertial confinem using a collective model for re bremsstrahlung and fuel depleti efficient electrodynamic laser	ent fusion gains heat, on for highly
SIRAPE implementation plans [SERI/RR-34-152]	25 p0172 N80-15570	Summary on inertial-confinement f	25 p0058 A80-17875
•	• • • • • • • • • • • • • • • • • • • •	•	25 p0059 A80-17893

INFORMATION DISSEMINATION	Solar-climactic statistical study windpower
Transfer of energy conservation technology to	utilization and solar energy conversion
industry. A preliminary survey of existing mechanisms	[HCP/T4016-01/2] 25 p0149 H80-13747 Insolation models, data and algorithms
[ANL/EES-IN-28] 25 p0111 N80-11576	[SERI/TR-36-110] 25 p0165 N80-14617
INFORMATION SYSTEMS	INSTRUMENT BREORS
World Energy Data System (WENDS) [CONF-790461-2] 25 p0112 N80-11587	Solar cell spectral response characterization 25 p0037 A80-14685
INFRARED ABSORPTION	INSTRUMENT PACKAGES
The RMSP laser fusion programme	Development of in situ marine seismic and
25 p0056 A80-17860 Work on laser interaction and implosion at Centre	geotechnical instrumentation systems [SAND-79-0868C] 25 p0137 N80-13431
d'Etudes de Limeil	INSTRUMENTS 25 po 157 mou-15451
25 p0057 A80~17863	Instrumentation principles for performance
INFRARED LASERS Work on laser interaction and implosion at Centre	measurement of solar heating systems 25 p0020 A80-12432
d'Etudes de Limeil	INTEGRATED CIRCUITS
25 p0057 A80-17863	Development of integrated thermionic circuits for
INGOTS Assessment of present state-of-the-art sawing	geothermal high-temperature applications [LA-UR-79-723] 25 p0112 N80-11592
technology of large diameter ingots for solar	INTEGRATED REERGY SYSTEMS
sheet material	Steam turbines thermoelectric power generation
[NASA-CR-162535] 25 p0151 N80-14273 INHIBITORS	[ANL/CES/TE-78-7] 25 p0095 N80-10502 The first small power system experiment, Phase 1:
On-line tests of organic additives for the	Engineering experiment no. 1 solar thermal
inhibition of the precipitation of silica from	electric power plants
hypersaline geothermal brine. 2: Tests of nitrogen-containing compounds, silanes, and	[NASA-CE-162417] 25 p0095 N80-10596 Heat pump centered integrated community energy
additional ethoxylated compounds	systems: System development
[UCID-18195] 25 p0110 N80-11567	[ANL/ICES-TH-27] 25 p0110 N80-11571
Construction and test of a high power injector of	Heat pump centered integrated community energy systems; System development
hydrogen cluster ions	[ANL-ICES-TH-28] 25 p0111 N80-11574
INORGANIC COMPOUNDS 25 p008C A80-19618	Regional reference energy systems: Electric
Environmental protection in the processing of coal	utility applications [BNL-50962] 25 p0111 N80-11585
<ul> <li>The utilization or disposal of coal processing</li> </ul>	DOE heat pump centered integrated community energy
residues 25 p0030 A80-12942	systems project
INORGANIC NITRATES	[CONF-790362-1] 25 p0112 N80-11586 Assessment of Stirling engine potential in total
Western energy sulfate/nitrate monitoring network	and integrated energy systems
[PB-299238/6] 25 p0180 N80-15685 INPOT	[ANL/ES-76] 25 p0140 N80-13636
Supply and demand in input-output analysis for	Community heating and cooling systems [CCNF-790446-6] 25 p0147 N80-13706
energy modeling	High-BTO coal gasification processes
25 p0088 A80-20890 SAMICS: Input data preparation Solar Array	[ANL/CES/TE-79-2] 25 p0150 N80-14263  Heat pump centered integrated community energy
Manufacturing Industry Costing Standards	systems: Systems development
[NASA-CE-162421] 25 p0110 N80-11570 INSOLATION	[ANL/ICES-TH-30] 25 p0173 N80-15588
Simple procedure for predicting long term average	Heat pump centered integrated community energy systems: System development
performance of nonconcentrating and of	[ANL/ICES-TM-26] 25 p0173 N80-15589
concentrating solar collectors 25 p0005 A80-11340	INTERMETALLICS
Insolation modeling overview	Thermodynamic and structural properties of LaNi/5-y/Aly compounds and their related hydrides
25 p0020 A80-12428	25 p0033 A80-13200
Solar energy availability over India for maximum utilisation	INTERNAL COMBUSTION ENGINES  Flame propagation through unconfined and confined
25 p0023 A80-12740	hemispherical stratified gaseous mixtures
Calculation of monthly mean solar radiation for	25 p0008 A80-11816
horizontal and inclined surfaces 25 p0028 A80-12817	Start up system for hydrogen generator used with an internal combustion engine
Calculation of climatic solar heating performance	[NASA-CASE-NPO-13849-1] 25 p0092 N80-10374
25 p0029 A80-12820 Correspondence between solar load ratio method for	Energy storage systems for automobile propulsion,
passive water wall systems and f-Chart	1978 study. 1: Overview and findings [UCRL-52553-VOL-1] 25 p0105 N80-10970
performance estimates	Investigation of the viability and cost
25 p0029 A80-12821 Measurement of insolation using CdS photoresistor	effectiveness of solid fuel gasifiers close
25 p0047 A80-16998	coupled to internal combustion engines for 200 kWe power generation
A method of estimating monthly average solar	[DCE/RL-90476-13] 25 p0169 N80-15293
radiation on shaded receivers 25 p0060 A80-18123	INTERNATIONAL COOPERATION  Legal and political problems of solar power
Use of adjustable flat mirrors with flat-plate	stations in space
Collectors	[IAP PAPER 79-IISL-03] 25 p0047 A80-17064
[AIAA PAPER 80-0294] 25 p0063 A80-18299 Experimental results of the solar heating system	INVERTED CONVERTERS (DC TO AC)  Classification and technical review of dc-ac
on the LSU field house	inverters for use in photovoltaic power systems
[AIAA PAPER 80-0297] 25 p0063 A80-18301 An average slope factor for solar insolation	[COO-4094-25] 25 p0137 N80-13377
[ASME PAPER 79-WA/SOL-41] 25 p0067 A80-18572	INVESTMENTS Determination of the optimal solar investment
The effects of regional insolation differences	decision criterion
upon advanced solar thermal electric power plant performance and energy costs	25 p0021 A80-12437
[ASME PAPER 79-WA/SOL-15] 25 p0069 A80-18588	Experimental verification of the mercury-iodine
Graphical representation of TMY solar radiation	thermochemical cycle for the production of
availability for one- and two-axis solar collectors	hydrogen from water, ANL-4
[SANE-79-0418] 25 p0100 N80-10640	[CONF-780807-11] 25 p0150 N80-14265

SUBJECT INDEX

The United States programme in heavy ion beam fusion	Investigations of isotope separation effects of a
25 p0 C58 A80-17873	Ti-fluidized bed
Construction and test of a high power injector of	25 p0082 A80-1966
hydrogen cluster ions 25 p0080 A80-19618	ISOTOPE SEPARATION
ION BEAMS	Investigations of isotope separation effects of a Ti-fluidized bed
Developments in Sandia Laboratories particle beam	25 p0082 A80-19669
fusion programme . 25 p0057 180-17867	The jet membrane process for uranium separation and enrichment
The United States programme in heavy ion leam fusion	[RE-586] 25 p0091 N80-10329
25 p0 C58 A80-17873	ITALY
Nuclear fusion by cylindrical ion implosion	Assessment of geothermal potential of central and southern Tuscany
25 p0C58 A80-17874 MeV cluster ion beam diagnostics by means of	25 p0075 180-1920
calorimetry and time-of-flight spectroscopy	IVORY COAST
25 p0080 A80-19612	Solar energy commercialization for African countries
ION CHARGE Current equilibrium and effective ion charge in	[HCP/CS-2522] 25 p0127 N80-1259
L-2 stellarator plasma	. <b>l</b>
25 p0055 A80-17829	IRM BUCTUR BORIC
Current equilibrium and effective ion charge in	JET ENGINE FUELS An engine fuel chemistry solution to the problem
L-2 stellarator plasma	of jet fuel supplies
25 p0055 A80-17829	25 p0001 A80-10199
MeV cluster ion beam diagnostics by means of calorimetry and time-of-flight spectroscopy	Alternative jet aircraft fuels 25 p0091 N80-10209
25 p0080 A80-19612	JET BIXING FLOW
IOH CYCLOTRON HADIATION	Effect of vertical scale distortion on the
Design of antennae for R.F. power coupling to tokamak plasma in the ion cyclotron range of	temperature field of a thermal-hydraulic model [PB-297274/3] 25 p0108 N80-1155
frequency	JET PUMPS
25 p0079 A80-19608	Solar-thermal jet pumping for irrigation
ION DISTRIBUTION  Construction and test of a high power injector of	[AIAA FAPEE 80-0402] 25 p0077 A80-19328 JET STREAMS (METEOROLOGY)
hydrogen cluster ions	Electricity generation from jet-stream winds
25 p0080 A80-19618	25 p0007 A80-11644
ION PROBES: Particle beam systems in plasma diagnostics	JOSEPHSON JUNCTIONS A 30-ps Josephson current injection logic /CIL/
25 p0045 A80-16718	25 p0030 A80-12853
ION PROPULSION	Effect of microwave radiation on the
Heat pipe cooled power magnetics [NASA-CR-159659] 25 p0136 N80-13362	<pre>voltage-current characteristics of a variable-thickness Josephson microbridge</pre>
IRELAND .	25 p0035 A80-14430
The assessment of actual wind power availability	JUNCTION DIODES
in Ireland 25 p0003 A80-10844	AlGaAs tunnel diode 25 p0046 A80-16799
IRON	JUNCTION TRANSISTORS
Optimization of iron-air and nickel oxide-iron	Unconventional circuits for static voltage
traction batteries 25 p0011 A80-11847	transformers [BMF1-FB-T-78-26] 25 p0107 N80-11368
Photophysical and chemical processes affecting the	[ 2011 12 1 70 20 ]
stability of the thiazine dye-iron system in	<b>K</b>
hydrogen production 25 p0033 A80-13198	KENYA
Development of the steam-iron process for hydrogen	Solar energy commercialization for African countries
production, 9010 [PR-2435-32] 25 p0150 N80-14258	[HCP/CS-2522] 25 p0127 N80-1259
[FE-2435-32] 25 p0150 N80-14258 IRON COMPOUNDS	REROGEN Properties of gases and petroleum liquids derived
The electrochemical characteristics of iron	from terrestrial kerogen at various maturation
sulphide in immobilized salt electrolytes	levels
25 p0013 A80-11862 Review of industrial participation on the ANL	25 p0073 A80-18832 Analysis and simulated diagenesis of kerogen in a
lithium/iron sulfide battery development program	recent bottom mud from Mono Lake, California - A
for energy storage and electric vehicles	comparison with selected ancient kerogens
[CONF-780852-1] 25 p0164 N80-14573 Development of Li-Al/FeS cells with LiCl-rich	25 p0085 A80-20378 KEROSENE
electrolyte	Dynamics of diesel fuel combustion in turbulent flow
[CONF-7810135-2] 25 p0176 N80-15614	25 p0091 N80-10074
IRRADIATION A study of the thermal effect that radiant energy	KINETIC THEORY  Photogalvanic cells
produces on a mass of water Spanish thesis	25 p0073 A80-18749
25 p0040 A80-15653	KRYPTON PLUCBIDE LASERS
IRRIGATION Solar-thermal jet pumping for irrigation	Laboratory evaluation of two laser fluorosensor systems
[AIAA PAPER 80-0402] 25 p0077 A80-19328	25 p0031 A80-12964
Technical and economic assessment of solar powered	•
water pumping for remote areas [SAND-79-8187] 25 p0129 N80-12608	L
ISOMERIZATION	LABORATORY EQUIPMENT
Photosensitization mechanisms for energy storing	Laboratory coal gasifier facility
isomerizations [AD-A074968] 25 p0156 N80-14502	[UCRL-82602] 25 p0106 N80-11245
ISOMERS 25 po 150 mod 14502	Analysis and simulated diagenesis of kerogen in a
Energy storage in organic photoisomers	recent bottom mud from Mono Lake, California - A
25 p0072 A80-18747	comparison with selected ancient kerogens 25 p0085 A80-2037

LAMINAR PLOW	Laser fusion implications of resonance absorption
A theoretical study of laminar free convection in	and associated electrostatic field pressure
1-D solar induced flows 25 p0005 A80-11337 LAMINAR HEAT TRANSFER	25 p0057 A80-17869 Non-linear theory of collective processes in laser-pellet interaction and soliton generation
A theoretical study of laminar free convection in	25 p0057 A80-17870
1-D solar induced flows 25 p0005 &80-11337	Wave absorption and superreflectivity of laser plasmas due to electromagnetic structure
LAND HANAGEMENT Mission analysis for the Federal fuels from	resonances 25 p0057 180-17871
biomass program. Volume 3: Feedstock availability	Theory of cavitons in laser-irradiated plasmas 25 p0057 A80-17872
[SAN-0115-T1] 25 p0168 N80-15276	Calculations of inertial confinement fusion gains
Pederal leasing and outer continental shelf energy production goals	using a collective model for reheat, bremsstrahlung and fuel depletion for highly
[DOE/RA-0037] 25 p0178 N80-15640	efficient electrodynamic laser compressions
LAND USE Growing energy: Land for biomass farms	25 p0058 A80-17875 Summary on inertial-confinement fusion
[PB-296650/5] 25 p0094 N80-10400 Implementation of state solar incentives: Land-use	25 p0059 A80-17893 Multichannel Thomson scattering system for the
planning to ensure solar access	tokamak TFE based on two-detector spectrum
[SERI/TR-51-163] 25 p0158 N80-14519 Analysis of potential implementation levels for	analyzers 25 p0060 A80-18111
waste heat utilization in the nuclear power	A multi-pulse ruby laser recording of the temporal
industry [ORNL/TM-63-2] 25 p0177 N80-15625	evolution of plasma parameters by light scattering 25 p0084 A80-20165
LARGE SPACE STRUCTURES	LASER PLASMAS
Weight optimization of ultra large space structures [SAWE PAPER 1301] 25 p0086 A80-20641	The physics of laser fusion Book
[SAWE PAPER 1301] 25 p0086 A80-20641 LASER APPLICATIONS	25 p0019 A80-12049 Inertial confinement fusion at NRL
Laboratory evaluation of two laser fluoresensor	25 p0056 A80-17861
systems 25 p0031 A80-12964	Evidence of nonlinear processes from X-ray spectra
CO2 electric discharge lasers - Present status and future applications	of CO2 laser-irradiated targets 25 p0046 A80-16776
25 p0039 A80-14960	LASERS 25 pour and 107/6
LASER FUSION Status of inertial confinement fusion	Design of heat pipe cooled laser mirrors with an inverted meniscus evaporator wick
25 p0016 A80-11976	[AIAA PAPER 80-0148] 25 p0064 A80-18366
The physics of laser fusion Book 25 p0019 A80-12049	LATRY  Molten salt pyrolysis of latex for hydrocarbon
Laser fusion - Energy application perspectives	fuel production
25 p0030 A80-12883 Non-stochastic heating of magnetized plasma by	[NASA-CASE-NPO-14315-1] 25 p0092 N80-10361 LAW (JURISPRUDENCE)
electrostatic wave 25 p0043 A80-16194	Dimensions/BBS, volume 63, no. 6, Jun∈ 1979 [PB-297836/9] 25 p0105 N80-10975
The KMSP laser fusion programme	Energy folicy and Conservation Act (Public Law
25 p0056 A80-17860 Experimental studies of interaction and transport	94-163) as amended by the National Energy Conservation Policy Act (Public Law 95-619).
processes in laser fusion	Title 10: Energy. Chapter 2: Department of
25 p0057 A80-17864 Laser fusion implications of resonance absorption	Energy. Subchapter D: Energy Conservation. Part 430: Energy conservation program for
and associated electrostatic field pressure	consumer products
Non-linear theory of collective processes in	[DOE/CS-0056] 25 p0163 N80-14567 LEAD (METAL)
laser-pellet interaction and soliton generation	Lead batteries, volume 2. Citations from the
25 p0057 A80-17870 Theory of cavitons in laser-irradiated plasmas	engineering index data base [NTIS/PS-77/0634] 25 p0103 N80-10681
25 p0057 A80-17872	LEAD OXIDES
X-ray measurement of laser fusion targets using least squares fitting	Lead oxides-lithium cells 25 p0012 A80-11859
25 p006C A80-18110	LEAD SELEMIDES Solar absorption spectra of PbS-Al and PbSe-Al
Recent developments in linear theta-pinch and	systems
laser-heated solenoid research 25 p0055 180-17825	25 p0027 A80-12781 LEAD SULFIDES
Design of heat pipe cooled laser mirrors with an	Solar absorption spectra of PbS-Al and PbSe-Al
inverted meniscus evaporator wick [AIAA PAPER 80-0148] 25 p0064 A80-18366	systems 25,p0027 A80-12781
LASER OUTPOTS A cesium TELEC experiment at Lewis Research Center	LEAST SQUARES METHOD X-ray measurement of laser fusion targets using
[NASA-CB-159729] 25 p0151 N80-14386	least squares fitting
LASES PLASMA INTERACTIONS  The physics of laser fusion Book	25 p0060 A80-18110 RAPAD - Real-time Accurate Performance Analysis of
25 p0019 A80-12049	Data for performance estimation of wind
Evidence of nonlinear processes from X-ray spectra of CO2 laser-irradiated targets	energy conversion system [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565
25 p0046 A80-16776	LEGAL LIABILITY
Recent developments in linear theta-pinch and laser-heated solenoid research	Legal and political problems of solar power stations in space
25 p0055 A80-17825 Work on laser interaction and implosion at Centre	[IAF PAPER 79-IISL-03] 25 p0047 A80-17064 LIBRARIES
d'Etudes de Limeil	Assessment of the applicability of the national
25 p0057 A80-17863 Experimental studies of interaction and transport	fire weather data library to wind energy analyses [FNL-2538] 25 p0165 N80-14655
processes in laser fusion	LIPE (DUBABILITY)
25 p0057 A80-17864	Gas generator research and development: BI-GAS process
	[FE-1207-62] 25 p0135 N80-13288

SUBJECT INDEX LITEIUM CHLORIDES

Development of an accelerated test design for	LIQUID FLOW
predicting the service life of the solar array	Simultaneous investigation of transverse and longitudinal edge effects in the channel of a
at Mead, Nebraska [NASA-CH-162534] 25 p0154 N80-14463 LIFE CYCLE COSTS	plane MHD induction pump . 25 p0030 A80-12897
Determination of the optimal solar investment decision criterion	LIQUID HELIUM Preparation of superconducting coil through
25 p0021 A80-12437 OTEC - A comprehensive energy analysis	composite
25 p0085 A80-20456	LIQUID HYDROGEN  Hydrogen-powered vs. battery-powered automobiles
An applications analysis for the solar industrial process heat market  25 p0088 A80-20888	25 p0033 A80-13199 Hydrogen storage by use of cryoadsorbents in
LIGHT BEAMS	comparison to alternatives 25 p0042 A80-15992
Structure of an averaged statistical pencil of rays reflected from a heliostat	Survey of liquid hydrogen container techniques for
25 p0051 A80-17247 LIGHT SCATTERING	highway vehicle fuel system applications [HCP/M2752-01] 25 p0092 N80-10383
Multichannel Thomson scattering system for the	Hydrogen production. Citations from the international aerospace abstracts data base
tokamak TFR based on two-detector spectrum analyzers	[NTIS/PS-79/0773/6] 25 p0094 N80-10401
25 p0060 A80-18111 Cavity enhancement by controlled directional	Economics of hydrogen production and liquefaction updated to 1980 [NASA-CE-159163] 25 p0106 N80-11238
scattering in solar collectors 25 p0C83 A80-19955	Liquid hydrogen as an automotive fuel
LIGHT SOURCES  Space light - Space industrial enhancement of the	[LA-UR-79-621] 25 p0136 N80-13297 Liquefied gaseous fuels safety and environmental
solar option 25 p0073 A80-18797	control assessment program [DOE/EV-0036] 25 p0151 N80-14266
LIGHT WATER Outlook for nuclear fission energy	LIQUID INJECTION  Energy saving in injection molding
[CONF-7811126-1] 25 p0 157 N80-14509	[NEL-662] 25 p0136 N80-13318
LIGHITE Lignite fuel and power-plant availability	LIQUID METALS Conduction-type MHD generator with back-and-forth
25 p0004 A80-10944 Analysis of tarry fractions in emissions resulting	motion of the hybrid working material 25 p0030 A80-12898
from low temperature oxidation of brown coal 25 p0007 A80-11448	Influence of wall-jet gas injection on liquid-metal MHD generator performance
LIMESTONE Piscal year 1978 experiences at TVA's Widows Creek	25 p0047 A80-16996 Solar-powered liquid-metal MHD power systems
unit 8 limestone scrubber	[ASME PAPER 79-WA/SOL-22] 25 p0065 A80-18554 Performance limits for liquid-metal heat pipes
[ASME PAPER 79-WA/APC-10] 25 p0071 A80-18623 LINBAR CIRCUITS	containing long adiabatic sections
Investigation of the effect of piston inductance on energetic characteristics of a piston linear	[LA-UB-79-1241] 25 p0095 %80-10472 Experimental two-phase liquid-metal
generator with a ferromagnetic core 25 p0083 A80-20066	magnetohydrodynamic generator program [AD-A073128] 25 p0132 N80-12882
Change in rate of conducting-piston motion and the	LIQUID PHASES
characteristics of field-diffusion processes in a linear electromechanical energy converter 25 p0083 A80-20069	Transient-pressure analysis in geothermal steam reservoirs with an immobile vaporizing liquid phase
LINEAR PROGRAMMING	25 p0076 A80-19209
Research and evaluation of biomass resources/conversion/utilization systems	LIQUID-GAS MIXTURES  Electric power generation and LNG evaporation with
(market/experimental analysis for development of	the aid of gas turbines within a closed-cycle process
a data base for a fuels from biomass model) [C00-5022-5] 25 p0172 N80-15576	[AED-CGNF-78-155-010] 25 p0121 N80-12291
MARKAL: A multiperiod linear-programming model for energy systems analysis (BNL version)	LIQUID-SOLID INTERPACES  Heat transfer to a melting solid with application
[BNL-26390] 25 p0178 N80-15634	to thermal energy storage systems 25 p0036 A80-14667
Economics of hydrogen production and liquefaction	LIQUIDS Thermal performance evaluation of the Suncatcher
updated to 1980 [NASA-CR-159163] 25 p0106 N80-11238	SH-11 (liquid) solar collector
LIQUEFIED NATURAL GAS  The impact of LNG spills on the environment: A	[NASA-CR-161253] 25 p0156 N80-14497
comparison of dispersion models and experimental data	Studies on the Ca-CaCrO4 and Li-Al-PeS2 systems for thermal battery applications
[UCRL-81812] 25 p0103 N80-10688	25 p0012 A80-11854
Numerical modeling of LNG spill phenomena [UCBL-82031] 25 p0130 N80-12625	Heat generation in Li/SOC12 cells 25 p0012 A80-11855
Liquefied gaseous fuels safety and environmental control assessment program	Behaviour of the secondary lithium electrode on alloying substrates in propylene carbonate based
[DOE/EV-0036] 25 p0151 M80-14266 LNG industry: An overview of projects and costs	electrolytes 25 p0012 A80-11857
[CONP-7811112-2] 25 p0 168 N80-15278 Simulation of LNG vapor spread and dispersion by	Recent advances in high temperature primary lithium batteries
finite element methods [UCRL-82441] 25 p0168 N80-15282	25 p0013 A80-11863 A study of the solar LiBr dual cycle characteristics
LIQUID AHBORIA Liquefied gaseous fuels safety and environmental	[AIAA PAPER 80-0400] 25 p0077 A80-19327 Lithium inorganic electrolyte battery development
control assessment program	[AD-A073858] 25 p0157 N80-14505
[DOE/EV-0036] 25 p0151 N80-14266 LIQUID CHROMATOGRAPHY	LITHIUM CHLORIDES  Analysis of a LiCl open-cycle absorption air
A chromatographic peak profiling technique for interpretation and analysis of combustion	conditioner which utilizes a packed bed for regeneration of the absorbent solution driven by
processes	solar heated air [COO-4546-1] 25 p0101 N80-10652
[AIAA PAPER 80-0284] 25 p0063 A80-18291	[ 200 4040 1] 25 Parer 10022

Development of Li-Al/FeS cells with LiCl-rich	MAGNETIC EFFECTS
electrolyte [CONF-7810135-2] 25 p0176 N80-15614	Simplified theory of nonuniform electrical
LITHIUM COMPOUNDS	conduction for an open cycle MHD generator with shaped magnetic induction
Diffusion of tritium in neutron-irradiated	25 g0047 A80-16997
microcrystalline Beta-Li5AlO4	MAGNETIC FIELD COMPIGURATIONS
25 p0081 A80-19660	Tearing modes in a plasma with magnetic braiding
LITHION HYDRIDES	25 p0006 A80-11349
New heat transfer geometry for hydride heat engines and heat pumps	Magnetic field design for a large tokamak
[LA-7822] 25 p0 169 N80-15289	25 p0046 A80-16760 High-beta tokamaks
LITHION SOLFOR BATTERIES	25 p0054 180-17789
Lithium/metal sulfide battery development	Principles of plasma heating and confinement in a
[CONF-790538-10] 25 p0159 N80-14530	compact toroidal configuration
Review of industrial participation on the ANL	25 p0055 A80-17822
lithium/iron sulfide battery development program for energy storage and electric vehicles	Pusion technology 1978; Proceedings of the Tenth
[CONF-780852-1] 25 p0164 N80-14573	Symposium, Padua, Italy, September 4-9, 1978. Volumes 1 & 2
Lithium/iron sulfide batteries for electric vehicles	25 p0078 A80-19581
[CONF-781006-2] 25 p0 175 N80-15611	A new high beta reversed field pinch machine
LOGIC CIRCUITS	25 p0078 A80-19587
A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853	Numerical computations in the design of compact
LONG TERM EFFECTS	ignition experiments of D-T toroidal plasma heating
Derivation of method for predicting long term	25 p0078 A80-19589
average energy delivery of solar collectors	Poloidal magnetic field design of a pulsed tokamak
25 p0005 A80-11339	reactor
Simple procedure for predicting long term average performance of nonconcentrating and of	25 p0078 A80-19592
concentrating solar collectors	The effect of classical and anomalous transport on the performance of Tandem Mirror reactors
25 p0005 A80-11340	25 p0079 A80-19596
Preliminary analysis of a total solar heating system	Ignitron switching problems associated with a
[ASME PAPER 79-WA/SOL-40] 25 p0069 A80-18583	large reversed field pinch experiment
LORENTZ FORCE Effect of velocity overshoot on the performance of	25 p0081 A80-19629
magnetohydrodynamic subsonic diffusers	MAGNETIC FIELDS  Processing of coal, oil sand and heavy oil in situ
[NASA-TM-79305] 25 p0166 N80-14922	by electric and magnetic fields
LOUISIANA	25 p0019 A80-12310
Geopressure energy resource evaluation Texas	MAGNETIC PLUX
and Louisiana [ORNL/PFA-79/2] 25 p0138 N80-13605	PULSAR: An inductive pulse power source
LOW ASPECT RATIO	[SAND-79-1246C] 25 p0177 N80-15627 NAGHETIC INDUCTION
Low-aspect-ratio limit of the toroidal reactor -	Simplified theory of nonuniform electrical
The spheromak	conduction for an open cycle MHD generator with
25 p0 058 A80-17876	channel magnetic industion
	shaped magnetic induction
LOW CONCENTRATIONS	25 p0047 A80-16997
LOW CONCENTRATIONS Tertiary oil recovery processes research at the	25 p0047 A80-16997 Induced fields in the motion of a conducting
LOW CONCENTRATIONS  Tertiary oil recovery processes research at the University of Texas  [BEIC-0001-1]  25 p0108 N80-11544	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system
LOW CONCENTRATIONS  Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138 MAGNETIC MIRRORS
LOW CONCENTRATIONS  Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1]  LOW COST  Low-cost central receiver solar power plant using	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138 MAGNETIC MIRRORS Diagnostics for mirror machines
LOW CONCENTRATIONS  Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1]  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138 MAGNETIC MIRBORS Diagnostics for mirror machines 25 p0045 A80-16720
LOW CONCENTRATIONS  Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1]  LOW COST  Low-cost central receiver solar power plant using	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138 MAGNETIC MIRBORS Diagnostics for mirror machines 25 p0045 A80-16720 Survey of mirror machine reactors
LOW CONCENTRATIONS  Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138 MAGNETIC MIRRORS Diagnostics for mirror machines Survey of mirror machine reactors 25 p0045 A80-16720 25 p0046 A80-16752
TOW CONCENTRATIONS  Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138 MAGNETIC MIRBORS Diagnostics for mirror machines 25 p0045 A80-16720 Survey of mirror machine reactors
LOW CONCENTRATIONS  Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 A80-16720 Survey of mirror machine reactors 25 p0046 A80-16752 Transverse particle losses in axially asymmetrical open traps 25 p0055 A80-17840
TOW CONCENTRATIONS Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines 25 p0045 A80-16720 Survey of mirror machine reactors Transverse particle losses in axially asymmetrical open traps 25 p0055 A80-17840 Investigation of plasma heating by powerful
LOW CONCENTRATIONS  Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents	25 p0047 A80-16997  Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 A80-16720  Survey of mirror machine reactors  25 p0046 A80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 A80-17840  Investigation of plasma heating by powerful relativistic electron beams
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines 25 p0045 A80-16720 Survey of mirror machine reactors 25 p0046 A80-16752 Transverse particle losses in axially asymmetrical open traps 25 p0055 A80-17840 Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288	25 p0047 A80-16997  Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 A80-16720  Survey of mirror machine reactors  25 p0046 A80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 A80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  Tandem mirror reactors for controlled fusion 25 p0059 A80-17887
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 A80-16720 Survey of mirror machine reactors 25 p0046 A80-16752 Transverse particle losses in axially asymmetrical open traps 25 p0055 A80-17840 Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857 Tandem mirror reactors for controlled fusion 25 p0059 A80-17887 The effect of classical and anomalous transport on
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SANC-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SANC-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 A80-16720 Survey of mirror machine reactors 25 p0046 A80-16752 Transverse particle losses in axially asymmetrical open traps 25 p0055 A80-17840 Investigation of plasma heating by powerful relativistic electron heams 25 p0056 A80-17857 Tandem mirror reactors for controlled fusion 25 p0059 A80-17887 The effect of classical and anomalous transport on the performance of Tandem Mirror reactors
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST 25 p00108 N80-11544  LOW COST Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEBI/RR-54-164] 25 p0172 N80-15583  LUBRICATING OILS	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 A80-16720 Survey of mirror machine reactors 25 p0046 A80-16752 Transverse particle losses in axially asymmetrical open traps 25 p0055 A80-17840 Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857 Tandem mirror reactors for controlled fusion 25 p0059 A80-17887 The effect of classical and anomalous transport on
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RR-54-164] 25 p0172 N80-15583  LUBRICATING OILS  Heasurements and standards for recycled oil - 2	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 &80-18138  MAGNETIC MIRBORS Diagnostics for mirror machines  25 p0045 &80-16720 Survey of mirror machine reactors  25 p0046 &80-16752 Transverse particle losses in axially asymmetrical open traps  25 p0055 &80-17840 Investigation of plasma heating by powerful relativistic electron beams  25 p0056 &80-17857 Tandem mirror reactors for controlled fusion 25 p0059 &80-17887 The effect of classical and anomalous transport on the performance of Tandem Mirror reactors  25 p0079 &80-19596  MAGNETIC PISTORS Investigation of the effect of piston inductance
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST 25 p00108 N80-11544  LOW COST Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEBI/RR-54-164] 25 p0172 N80-15583  LUBRICATING OILS	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 A80-16720  Survey of mirror machine reactors  25 p0046 A80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 A80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  Tandem mirror reactors for controlled fusion 25 p0059 A80-17887  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors 25 p0079 A80-19596  MAGNETIC PISTOMS  Investigation of the effect of riston inductance on energetic characteristics of a piston linear
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEBI/RB-54-164] 25 p0172 N80-15583  LUBRICATING OILS  Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275	25 p0047 A80-16997 Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 A80-16720 Survey of mirror machine reactors 25 p0046 A80-16752 Transverse particle losses in axially asymmetrical open traps 25 p0055 A80-17840 Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857 Tandem mirror reactors for controlled fusion 25 p0059 A80-17887 The effect of classical and anomalous transport on the performance of Tandem Mirror reactors 25 p0079 A80-19596  MAGNETIC PISTOMS Investigation of the effect of fiston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SERI/RR-54-164] 25 p0172 N80-15583  LUBRICATING OILS  Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 A80-16720  Survey of mirror machine reactors  25 p0046 A80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 A80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  Tandem mirror reactors for controlled fusion 25 p0059 A80-17887  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors 25 p0079 A80-19596  MAGNETIC PISTOMS  Investigation of the effect of riston inductance on energetic characteristics of a piston linear
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST 25 p0017 N80-11544  LOW COST Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE Low temperature reaction path for coal liquefaction [SANE-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEBI/RR-54-164] 25 p0172 N80-15583  LUBRICATING OILS Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRHORS Diagnostics for mirror machines  25 p0045 A80-16720  Survey of mirror machine reactors  25 p0046 A80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 A80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  Tandem mirror reactors for controlled fusion 25 p0059 A80-17887  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors 25 p0079 A80-19596  MAGNETIC PISTOMS  Investigation of the effect of riston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core 25 p0083 A80-20066  MAGNETIC SUSPENSION  Linear synchronous motor development for urban and
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAND-0113-T3] 25 p0145 N80-13678  LOW TERPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEEI/RB-54-164] 25 p0172 N80-15583  LUBRICATING OILS  Measurements and standards for recycled oil - 2 [FB-299951/4] 25 p0167 N80-15275	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 A80-16720  Survey of mirror machine reactors  25 p0046 A80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 A80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  Tandem mirror reactors for controlled fusion 25 p0059 A80-17887  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors 25 p0079 A80-19596  MAGNETIC PISTOMS  Investigation of the effect of riston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core  25 p0083 A80-20066  MAGNETIC SUSPENSION  Linear synchronous motor development for urban and rapid transit systems
Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEBI/RR-54-164] 25 p0172 N80-15583  LUBRICATING OILS  Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 A80-16720  Survey of mirror machine reactors  25 p0046 A80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 A80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  Tandem mirror reactors for controlled fusion 25 p0059 A80-17887  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors 25 p0079 A80-19596  MAGNETIC PISTOMS  Investigation of the effect of piston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core 25 p0083 A80-20066  MAGNETIC SUSPENSION  Linear synchronous motor development for urban and rapid transit systems
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SANE-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEBI/RR-54-164] 25 p0172 N80-15583  LUBRICATING OILS  Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275  M  MAGRESIUM ALLOYS  Hydrogen storage by means of reversible magnesium alloy 25 p0041 A80-15990	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRHORS Diagnostics for mirror machines  Survey of mirror machine reactors  25 p0045 A80-16720  Survey of mirror machine reactors  25 p0046 A80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 A80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  Tandem mirror reactors for controlled fusion 25 p0059 A80-17857  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors 25 p0079 A80-19596  MAGNETIC PISTOMS Investigation of the effect of riston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core 25 p0083 A80-20066  MAGNETIC SUSPENSION Linear synchronous motor development for urban and rapid transit systems  25 p0062 A80-18167
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEEL/RE-54-164] 25 p0172 N80-15583  LUBRICATING OILS  Heasurements and standards for recycled oil - 2 [PE-299951/4] 25 p0167 N80-15275  M  HAGHESIUM ALLOYS  Hydrogen storage by means of reversible magnesium alloy 25 p0041 A80-15990  Use of reversible hydrides for hydrogen storage 25 p0642 A80-15991	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  Survey of mirror machine reactors  25 p0045 A80-16720  Survey of mirror machine reactors  25 p0046 A80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 A80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  Tandem mirror reactors for controlled fusion 25 p0059 A80-17887  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors  25 p0079 A80-19596  MAGNETIC PISTOMS  Investigation of the effect of riston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core  25 p0083 A80-20066  MAGNETIC SUSPENSION  Linear synchronous motor development for urban and rapid transit systems  25 p0062 A80-18167  MAGNETIC SWITCHING  Developments for the high voltage test of pulsed
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST 25 p0017 N80-11986  Some experimental receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEBI/RR-54-164] 25 p0172 N80-15583  LUBRICATING OILS Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275  M  MAGRESIUM ALLOYS  Hydrogen storage by means of reversible magnesium alloy 25 p0041 A80-15990  Use of reversible hydrides for hydrogen storage 25 p0C42 A80-15991	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRHORS Diagnostics for mirror machines  Survey of mirror machine reactors  25 p0045 A80-16720  Survey of mirror machine reactors  25 p0046 A80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 A80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  Tandem mirror reactors for controlled fusion 25 p0056 A80-17857  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors 25 p0079 A80-19596  MAGNETIC PISTOMS Investigation of the effect of riston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core 25 p0083 A80-20066  MAGNETIC SUSPENSION Linear synchronous motor development for urban and rapid transit systems  25 p0062 A80-18167  MAGNETIC SWITCHING Developments for the high voltage test of pulsed superconducting coils used in tokamak switches
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1]  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEBL/RB-54-164] 25 p0172 N80-15583  LUBRICATING OILS  Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275  M  MACHESIUM ALLOYS Hydrogen storage by means of reversible magnesium alloy 25 p0041 A80-15990 Use of reversible hydrides for hydrogen storage 25 p0C42 A80-15991  MAGNETIC COILS Electrical power system to TFTE poloidal coils	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 &80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  Survey of mirror machine reactors  25 p0045 &80-16720  Survey of mirror machine reactors  25 p0046 &80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 &80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 &80-17857  Tandem mirror reactors for controlled fusion 25 p0059 &80-17887  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors  25 p0079 &80-19596  MAGNETIC PISTONS  Investigation of the effect of riston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core  25 p0083 &80-20066  MAGNETIC SUSPENSION  Linear synchronous motor development for urban and rapid transit systems  25 p0062 &80-18167  MAGNETIC SWITCHING  Developments for the high voltage test of pulsed superconducting coils used in tokamak switches 25 p0081 &80-19655
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST 25 p0017 N80-11986  Some experimental receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEBI/RR-54-164] 25 p0172 N80-15583  LUBRICATING OILS Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275  M  MAGRESIUM ALLOYS  Hydrogen storage by means of reversible magnesium alloy 25 p0041 A80-15990  Use of reversible hydrides for hydrogen storage 25 p0C42 A80-15991	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 a80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 a80-16720  Survey of mirror machine reactors  25 p0046 a80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 a80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 a80-17857  Tandem mirror reactors for controlled fusion 25 p0059 a80-17887  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors  25 p0079 a80-19596  MAGNETIC PISTOMS  Investigation of the effect of riston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core  25 p0083 a80-20066  MAGNETIC SUSPENSION  Linear synchronous motor development for urban and rapid transit systems  25 p0062 a80-18167  MAGNETIC SUITCHING  Developments for the high voltage test of pulsed superconducting coils used in tokamak switches  25 p0081 a80-19655  MAGNETICALLY TEAPPED PARTICLES  A simple model describing hydrogen re-cycling in
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEEI/RB-54-164] 25 p0172 N80-15583  LUBRICATING OILS  Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275  M  HAGHESIUM ALLOYS  Hydrogen storage by means of reversible magnesium alloy 25 p0041 A80-15990  Use of reversible hydrides for hydrogen storage 25 p0C42 A80-15991  HAGHETIC COILS  Electrical power system to TFTR poloidal coils 25 p008C A80-19620  MAGNETIC CONTROL Wind energy conversion system with electromagnetic	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 &80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  Survey of mirror machine reactors  25 p0045 &80-16720  Survey of mirror machine reactors  25 p0046 &80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 &80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 &80-17857  Tandem mirror reactors for controlled fusion 25 p0059 &80-17887  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors  25 p0079 &80-19596  MAGNETIC PISTONS  Investigation of the effect of riston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core  25 p0083 &80-20066  MAGNETIC SUSPENSION  Linear synchronous motor development for urban and rapid transit systems  25 p0062 &80-18167  MAGNETIC SWITCHING  Developments for the high voltage test of pulsed superconducting coils used in tokamak switches 25 p0081 &80-19655
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEBI/RB-54-164] 25 p0172 N80-15583  LUBRICATING OILS  Heasurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275  M  MAGHESIUM ALLOYS  Hydrogen storage by means of reversible magnesium alloy 25 p0041 A80-15990  Use of reversible hydrides for hydrogen storage 25 p0C42 A80-15991  MAGNETIC COILS  Electrical power system to TFTR poloidal coils 25 p008C A80-19620  MAGNETIC COTTROL  Wind energy conversion system with electromagnetic stabiliser	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  **MAGNETIC MIRRORS**  Diagnostics for mirror machines**  Survey of mirror machine reactors**  25 p0045 A80-16720**  Survey of mirror machine reactors**  25 p0046 A80-16752**  Transverse particle losses in axially asymmetrical open traps**  25 p0055 A80-17840**  Investigation of plasma heating by powerful relativistic electron beams**  25 p0056 A80-17857**  Tandem mirror reactors for controlled fusion 25 p0059 A80-17887**  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors 25 p0079 A80-19596**  **MAGNETIC PISTOMS**  Investigation of the effect of riston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core**  **MAGNETIC SUSPENSION**  Linear synchronous motor development for urban and rapid transit systems**  25 p0062 A80-18167**  **MAGNETIC SWITCHING**  Developments for the high voltage test of pulsed superconducting coils used in tokamak switches 25 p0081 A80-19655**  **MAGNETICALLY TRAPPED PARTICLES**  A simple model describing hydrogen re-cycling in fusion experiments and its influence on discharge behaviour**
Tertiary oil recovery processes research at the University of Texas [BEIC-0001-1] 25 p0108 N80-11544  LOW COST  Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986  Some experimental studies on the technical developments of low cost silicon solar cells 25 p0028 A80-12789  Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678  LOW TEMPERATURE  Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-15288  Low temperature thermal energy storage: A state-of-the-art survey [SEEI/RB-54-164] 25 p0172 N80-15583  LUBRICATING OILS  Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275  M  HAGHESIUM ALLOYS  Hydrogen storage by means of reversible magnesium alloy 25 p0041 A80-15990  Use of reversible hydrides for hydrogen storage 25 p0C42 A80-15991  HAGHETIC COILS  Electrical power system to TFTR poloidal coils 25 p008C A80-19620  MAGNETIC CONTROL Wind energy conversion system with electromagnetic	Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138  MAGNETIC MIRRORS Diagnostics for mirror machines  25 p0045 A80-16720  Survey of mirror machine reactors  25 p0046 A80-16752  Transverse particle losses in axially asymmetrical open traps  25 p0055 A80-17840  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  Tandem mirror reactors for controlled fusion 25 p0059 A80-17887  The effect of classical and anomalous transport on the performance of Tandem Mirror reactors 25 p0079 A80-19596  MAGNETIC PISTOMS  Investigation of the effect of riston inductance on energetic characteristics of a piston linear generator with a ferromagnetic core  MAGNETIC SUSPENSION  Linear synchronous motor development for urban and rapid transit systems  25 p0062 A80-18167  MAGNETIC SWITCHING  Developments for the high voltage test of pulsed superconducting coils used in tokamak switches 25 p0081 A80-19655  MAGNETICALLY TRAPPED PARTICLES  A simple model describing hydrogen re-cycling in fusion experiments and its influence on discharge behaviour

25 p0136 N80-13362

25 p0055 A80-17840

MAGNETIC COBES

Heat pipe cooled power magnetics
[NASA-CE-159659]

MAGNETOACODSTIC WAVES

[AIAA PAPER 80-0176]

```
Convective heat transfer in MHD channels and its
   Past-magnetosonic-wave excitation in large-tokamak
                                                                                           influence on channel performance
[AIAA PAPER 80-0178] 25 p0064 A80-18355
      plasmas
                                                                                         [AIMA PAPER 80-0178]

Solar-powered liquid-metal MHD power systems
[ASME PAPER 79-WA/SOL-22]

Eat transfer including radiation and slag
particles evolution in MHD channel. I
[AIMA PAPER 80-0250]

Power take-off analysis for diagonally connected
MHD channels
                                                  25 p0056 A80-17855
MAGNETOR TORONYNAMIC PLOS
    Simultaneous investigation of transverse and
      longitudinal edge effects in the channel of a
      plane MHD induction pump
                                                  25 p0030 A80-12897
   Integral modeling of MHD channel boundary layers
[AIAA PAPER 80-0175] 25 p0064, A80-18353
Convective heat transfer in MHD channels and its
                                                                                         [AIAA PAFER 80-0253] 25 p0077 A80-19309 Effect of off-design operation of MHD generators
      influence on channel performance
[AIAA PAPER 80-0178] 25 p0064 A80-18355
                                                                                           on NO/x/ chemical kinetics
[AIAA PAPER 80-0254]
                                                                                                                                       25 r0077 A80-19310
    Heat transfer including radiation and slag
particles evolution in MHD channel. I
[AIAA PAPEE 80-0250] 25 p0076
                                                                                         Relativistic high-current microwave plasma
                                                                                            electronics
                                                  25 p0076 A80-19304
                                                                                                                                        25 p0083 A80-19847
HAGNETOHYDRODYNAMIC GENERATORS
                                                                                         Digital computer modeling of steady-state
    Performance of disk generators for open-cycle MHD
                                                                                            conditions of the magnetoplasmadynamic generator
      power generation
                                                                                            current layer
                                                                                                                                       25 p0083 A80-20058
                                                  25 p0007 A80-11642
    Survey of MHD plant applications
                                                                                         Results of duct area ratio changes in the NASA
                                                  25 p0015 A80-11972
                                                                                        Lewis H2-C2 compusitor
[NASA-TM-79308]

Experimental two-phase liquid-metal magnetohydrodynamic generator program
[AD-A073128]

User's manual for the magnetohydrodynamic generator channel code, MBDCHN
[SAND-78-1260]

Effects of metallurgical microstructure of armatures on compressed magnetic field generators
[SAND-79-0890C]

25 p0137 N80-13375
                                                                                            Lewis H2-G2 combustion MHD experiment
    Economics/reliability trade-offs in materials for
      various coal conversion and utilization processes
25 p0016 A80-11975
    Calculation of the low-frequency electromagnetic
      field of MHD machines encapsulated in a common
      screening shell
                                                  25 p0030 A80-12896
    Simultaneous investigation of transverse and
      longitudinal edge effects in the channel of a plane MBD induction pump
                                                  25 p0030 A80-12897
   Conduction-type MHD generator with back-and-forth motion of the hybrid working material
                                                                                           magnetohydrodynamic subsonic diffusers
                                                                                     [NASA-TM-79305]
HAGNETOHYDRODYHAMIC STABILITY
                                                                                                                                       25 p0166 N80-14922
    Determination of the geometry of the transition region of a series MHD generator

25 p0030 A80-12898

25 p0030 A80-12900
                                                                                         Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349
                                                                                         The physics of laser fusion --- Book
    Heat transfer in the channel of a high-power MHD
                                                                                                                                       25 p0019 A80-12049
                                                                                         Dynamic suppression of ionization instability ---
in MHD devices of Faraday and Hall types
25 p0043 A80-16484
      generator
                                                  25 p0035 A80-14516
    Some problems with variable operation of an MHD
      generator
                                                                                         Results from the Livertor Injection Tokamak
                                                  25 p0035 A80-14530
                                                                                            Experiment /DITE/
   The physics of closed cycle MHD power generation 25 p0043 A80-16264
                                                                                                                                       25 p0054 A80-17754
                                                                                         Accumulation of impurities and stability behaviour in the high-density regime of Pulsator
    Dynamic suppression of ionization instability --
      in MHD devices of Faraday and Hall tyres
25 p0043 A80-16484
                                                                                                                                       25 p0054 A80-17759
                                                                                         High-beta tokamaks
   Influence of wall-jet gas injection on liquid-metal MHD generator performance
                                                                                                                                       25 p0054 A80-17789
                                                                                         Dependence of ideal MHD beta limits on current
    25 p0047 A80-16996 Simplified theory of nonuniform electrical
                                                                                            density and pressure profiles
                                                                                                                                       25 p0054 A80-17790
      conduction for an open cycle MHD generator with shaped magnetic induction
                                                                                         MHD stability limits on high-beta tokamaks
                                                                                                                                        25 p0054 A80-17797
                                                  25 p0047 A80-16997
                                                                                         What is the mechanism responsible for the
    MED boundary layer of the seeded combustion gas
                                                                                            precursors of internal disruptions --- as
      near cold electrodes
                                                                                            observed in Tokamak plasma
                                                  25 p0047 A80-17004
                                                                                                                                       25 p0054 180-17807
   Concept of tokamak-type reactor with high-temperature blanket
                                                                                         LASL toroidal reversed-field pinch programme
25 p0054 A80-17809
                                                  25 p0059 A80-17885
                                                                                         Studies on plasma formation, relaxation and
   Influence of the loading factor on the performance characteristics of series MHD generators
                                                                                           heating in a reversed-field pinch
                                                                                                                                       25 p0054 A80-17811
    25 p0061 &80-18137 Induced fields in the motion of a conducting
                                                                                        End plugging of a hot linear theta pinch
25 p0055 A80-17824
                                                                                         Recent developments in linear theta-pinch and
      medium in the field of an air-core magnetic system
   25 p0061 A80-18138 Characteristics of series channels with a
                                                                                           laser-heated solenoid research
                                                                                                                                       25 p0055 A80-17825
      diminishing electrode-commutation angle in the transition section -- MED generators
                                                                                         Heating, confinement and fluctuations in the CLEO
   25 p0061 A80-18139 High interaction subsonic MHD channel operation
                                                                                                                                        25 p0055 A80-17826
                                                                                         Transverse particle losses in axially asymmetrical
      [AIAA PAPER 80-0022]
                                                25 p0062 A80-18242
                                                                                           open traps
   Results of duct area ratio changes in the NASA
Lewis H2-02 combustion MHD experiment
[AIAA PAPER 80-0023]
Coal-fired open cycle MHD combustion plasmas -
Chemical equilibrium and transport properties
                                                                                                                                       25 p0055 A80-17840
                                                                                         Drift wave stability and transport theory in
                                                 25 p0063 A80-18243
                                                                                           fusion systems
                                                                                                                                       25 c0056 A80-17846
                                                                                         Investigation of plasma heating by powerful
      workshor results
[AIAA PAPEE 80-0091]
                                                                                           relativistic electron beams
                                                  25 p0063 A80-18265
                                                                                                                                       25 p0056 A80-17857
    Integral modeling of MHD channel boundary layers
[AIAA PAPER 80-0175] 25 p0064 A80-1
                                                                                         Inertial confinement fusion at NRL
   [ATAA PAPER 80-0175] 25 p0064 A80-18353
Off-design performance analysis of MHD generator
                                                                                                                                       25 p0056 A80-17861
                                                                                        Low-aspect-ratio limit of the toroidal reactor -
      channels
                                                                                           The spheromak
```

25 p0064 A80-18354

25 p0058 A80-17876

min con con a la l	
The effect of current shear on the tearing	Environmental planning and assessment for highway
instability 25 p0059 A80-18086	vehicle use to alcohol fuels [CONF-790520-2] 25 p0168 N80-15281
Optimization of stabilized imploding liner fusion	BANUFACTURING
reactors	Energy and economic assessment of anaerobic
25 p0079 A80-19593	digesters and biofuels for rural waste management
Effect of finite beta on drift-wave turbulence and	[PB-296523/4] 25 p0094 P80-10398
particle confinement of toroidal plasma	The automated array assembly task of the low-cost
25 p0084 A80-20158 Study of current-driven magnetohydrodynamic	silicon solar array project, phase 2 [NASA-CE-162429] 25 p0109 N80-11562
instability in the Heliotron-D device	[NASA-CB-162429] 25 p0109 N80-11562 Phase 2 of the array automated assembly task for
25 p0084 A80-20159	the low cost silicon solar array project
MAGNETOHYDRODYNAMIC WAVES	[NASA-CR-162426] 25 p0110 N80-11565
Effect of finite beta on drift-wave turbulence and	Silicon concentrator solar cell manufacturing
particle confinement of toroidal plasma	development
25 p0084 A80-20158 HAGNETOHYDRODYNAMICS	[SAND-79-7021] 25 p0146 N80-13697
NASA-Lewis closed-cycle magnetohydrodynamics plant	A survey of photovoltaic systems [NASA-CR-150696] 25 p0171 N80-15563
analysis	MARINE RESOURCES
[NASA-TM-79249] 25 p0095 N80-10595	Fuels from marine biomass
Technical support for open-cycle MHD program	25 p0045 A80-16656
project planning and systems analysis of a	Direct solar energy conversion at sea
magnetohydrodynamic/steam power system [ANL/MHD-78-11] 25 p0181 N80-15942	25 p0053 A80-17583 Climatic variability, marine resources and
MAGNETORESISTIVITY	offshore development
A review of in situ composites for nonstructural	25 p0131 N80-12689
applications	MARINE TECHNOLOGY
25 p0002 A80-10285	Direct solar energy conversion at sea
MAGNETOSTATIC FIELDS	25 p0053 A80-17583
Non-stochastic heating of magnetized plasma by electrostatic wave	Preliminary assessment of industrial needs for an advanced ocean technology
25 p0043 A80-16194	[NASA-CR-162435] 25 p0118 N80-11747
MAGNETS	MARKET RESEARCH
The basics of magnetic separation as applied to	The prospect for anthracite as a national energy
municipal solid waste reclamation plants	resource
25 p0074 A80-18871	25 p0014 A80-11960
MAINTAINABILITY Impact of technology and maintainability on	SRC solids - A preferred compliance boiler fuel Solvent Refined Coal
economic aspects of tokamak power plants	25 p0015 A80-11968
25 p0059 A80-17884	Geothermal energy markets on the Atlantic coastal
MAINTENANCE	plain
Effects of inspection and maintenance programs on	25 p0016 A80-11978
fuel economy	Energy supply and demand in the midterm: 1985,
[PB-297583/7] 25 p017C N80-15420 NAN ENVIRONMENT INTERACTIONS	1990, and 1995 [DOE/EIA-0102/52] 25 p0097 N80-10620
Prospects - A social context for natural science	Preliminary assessment of industrial needs for an
global energy resource review	advanced ocean technology
25 p0044 A80-16651	[NASA-CR-162435] 25 p0118 N80-11747
The scope of environmental risk management	Application of diffusion research to solar energy
25 p0053 A80-17743	policy issues
The impact of a conceptual solar thermal electric conversion plant on regional meteorological	[SERI/TR-51-194] 25 p0158 N80-14518
conditions - A numerical study	Commercialization strategy report for energy from urban wastes
25 p0060 A80-18125	[TID-28852-DRAFT] 25 p0158 N80-14521
Automobile transportation and the environment	Commercialization strategy report for large wind
25 p0072 A80-18734	systems
Global ecology and man 25 p0131 N80-12668	[TID-28843-DRAFT] 25 p0161 N80-14544 Photovoltaic power systems market identification
Energy and climate: A review with emphasis on	and analysis
global interactions	[HCP/T4022-01] 25 p0162 N80-14559
25 p0131 N80-12677	Application analysis of solar total energy systems
MAN MACHIBE SYSTEMS	to the residential sector. Volume 4: Market
Interactive analysis methods for resource mapping 25 p0008 A80-11709	penetration [ALO-3787-4] 25 p0 174 N80-15597
MANAGEMENT ANALYSIS	[ALO-3787-4] 25 p0 174 N80-15597
Energy policy and decision analysis: new concepts	Commercialization task force for high Btu
and mechanisms	gasification
[LA-7909-MS] 25 p0140 N80-13634	[TID-28849] 25 p0135 N80-13286
MANAGEMENT METHODS Implementation of state solar incentives: A	Silicon concentrator solar cell manufacturing
preliminary assessment	development [SAND-79-7021] 25 p0146 N80-13697
[SERI/TR-51-159] 25 p0158 N80-14520	Silicon materials outlook study for 1980-1985
MANAGEMENT PLANNING	calendar years
Materials resource requirements and potential	[NASA-CR-162541] 25 p0155 N80-14492
limitations in solar energy products	Commercialization strategy report for small wind
25 p0018 A80-11990 Assessment of synfuel transportation to year 2000	systems [TID-28844-DRAFT] 25 p0161 N80-14543
[PNL-2768] 25 p0092 N80-10382	[TID-28844-DRAFT] 25 p0161 N80-14543 Commercialization strategy report for solar water
Managerial plan: Executive order 12003 and the	heating
National Energy Act	[TID-28856-DRAFT] 25 p0161 N80-14545
[DOE/TIC-10067] 25 p0104 N80-10965	Commercializing solar heating: A national
The future role of hydrogen fuel in an electrical society	strategy needed [PB-297882/3] 25 p0164 %80-14575
[UTIAS-241] 25 p0119 N80-12189	[PB-297882/3] 25 p0164 N80-14575 Commercialization strategy report for electric and
Low-temperature thermal energy storage program	hybrid vehicles
annual operating plan	
f OD NT (MM COOK)	[TID-28858-DRAFT] 25 p0166 B80-14972
[ORNL/TH-6934] 25 p0139 N80-13631	MARYLAND
[ORBL/TH-6934] 25 p0139 N80-13631	MARYLAND Baltimore applications project
[ORBL/TH-6934] 25 p0139 N80-13631	MARYLAND
[ORNL/TH-6934] 25 p0139 N80-13631	MARYLAND Baltimore applications project

SUBJECT INDEX HEMBEANES

ASS SPECTROSCOPY  MeV cluster ion beam diagnostics by means of	Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference,
calorimetry and time-of-flight spectroscopy 25 p0080 A80-19612	University of Pittsburgh, Pittsburgh, Pa., April 25-27, 1979. Part 2 - Systems and control
Characterization of coal-derived liquids and other fossil fuel related materials employing mass spectrometry. Mass spectrometry and	25 p0087 A80-20862 A single coal particle gasification model
fossil-energy conversion technology: A review [PE-2537-7] 25 p0120 N80-12198	25 p0088 A80-20884  Dynamic modeling of H2S clean-up processes in coal gasification
ATERIAL ABSORPTION  Ion-stimulated sorption of nitrogen on a	25 p0088 A80-20885 Optimization of a solar heating system with
continuously deposited titanium film 25 p0051 A80-17252	integral compensation 25 p0089 A80-20894
ATERIALS HANDLING	Mathematical modeling of coal gasification processes
Assessment of synfuel transportation to year 2000 [PNI-2768] 25 p0092 N80-10382	25 p0089 A80-20913 Dynamics and control: Energy conversion,
Survey of liquid hydrogen container techniques for highway vehicle fuel system applications	delivery, and demand analysis [ENL-26045] 25 p0099 N80-10633
[HCP/H2752-01] 25 p0092 N80-10383 Preparation of a coal conversion systems technical	Analysis of financial programs for energy conservation: Market simulation (penetration)
data book, project 61003	model
[FE-2286-32] 25 p0134 N80-13281	[HCP/M8662-1] 25 p0114 M80-11606
ATERIALS RECOVERY	A probabilistic study of wind-electric conversion
Resource recovery systems costs 25 p0001 A80-10029 Energy conservation through recycling	systems from the point of view of reliability and capacity credit
25 p0003 A80-10842 Gas recovery from unconventional sources	25 p0153 N80-14475 Geothermal energy market study on the Atlantic
25 p0014 A80-11958	coastal plain. Economic evaluation model for direct use of moderate temperature, up to 250 P,
A simple model describing hydrogen re-cycling in	geothermal resources in the northern Atlantic
fusion experiments and its influence on discharge behaviour	coastal plain
25 p0022 A80-12453	[PB-298785/7] 25 p0165 M80-14578 Research and evaluation of biomass
The uncertain costs of waste disposal and resource	resources/conversion/utilization systems
recovery	(market/experimental analysis for development of
25 p0043 A80-16150	a data hase for a fuels from biomass model)
The basics of magnetic separation as applied to	[COO-5022-5] 25 p0172 N80-15576
municipal solid waste reclamation plants	The 1985, 1990 and 1995 midterm energy market
25 p0074 A80-18871	model results under three scenarios of Fuel Use
Methane recovery from coalbeds	Act regulations
[DOE/MC-08089-T1] 25 p0093 N80-10387	[DOE/EIA-0182/2] 25 p0173 N80-15592
Methane recovery from coalbeds project. Technology	Fuel utilization in residences
test projects: Evaluation of candidate projects	[EPRI-EA-894] 25 p0175 N80-15604
[METC-8089-T4] 25 p0135 M80-13290 Overview of the Department of Energy's research,	MARKAL: A multiperiod linear-programming model for energy systems analysis (BNL version)
development and demonstration program for the	[BNL-26390] 25 p0178 N80-15634
recovery of energy and materials from urban waste [CONF-790373-1] 25 p0163 N80-14562	MATHEMATICAL PROGRAMMING
Meteorological effects of cil refinery operations in Los Angeles	An optimization model for overall urban energy planning
[PB-300720/0] 25 p0180 N80-15758	25 p0038 A80-14844
ATERIALS SCIENCE	Newton's method for generalized equations and the PIES energy model
Materials research - Probable impacts on solar	25 p0149 N80-13872
energy	MAXWELL EQUATION
25 p0C18 A80-11991	New approach for Vlasov equilibrium of a
New development and applications in composites; Proceedings of the Symposium, St. Louis, Mo.,	relativistic electron beam in a plasma medium 25 p0085 A80-20538
October 16, 17, 1978	MEASURING INSTRUMENTS
25 p0040 A80-15501	A low level wind measurement technique for wind
Report on Finnish technological activities	turbine generator siting
ATHEMATICAL HODELS 25 p0 119 N80-11991	25 p0042 A80-16084
A mathematical model for a future hydrogen power	Borehole geological assessment [NASA-CASE-NFO-14231-1] 25 p0104 N80-10709
system 25 p0001 A80-10223 .	MECHANICAL DRIVES Prime mover for solar power plant
Second-law analysis of solar-thermal processes 25 p0003 A80-10843	25 p0024 A80-12752 Semiconductor alternating-current motor drives and
Frontiers in energy demand modeling 25 p0009 A80-11830	energy conservation ° 25 p0034 A80-13861
Assessing energy policy models - Current state and future directions	MECHANICAL ENGINEERING  Coal liquefaction short residence time process
25 p0009 A80-11831	research
Physical modelling of the electromagnetic heating	[SAND-79-1400] 25 p0133 N80-13272
of oil sand and other earth-type and biological materials	RECHANICAL PROPERTIES  Program to discover materials suitable for service
25 p0020 A80-12311 Computers in the design of solar energy systems	under hostile conditions obtaining in equipment for the gasification of coal and other solid fuels
25 p0020 A80-12426 Integral modeling of MHD channel boundary layers	[FE-1784-42] 25 p0106 N80-11248
[AIAA PAPER 80-0175] 25 p0064 A80-18353 A vortex model of the Darrieus turbine - An	Heat transfer to a melting solid with application to thermal energy storage systems
analytical and experimental study	25 p0036 A80-14667
[ASME PAPER 79-WA/FE-6] 25 p0070 A80-18620 Thermodynamic behaviour of the Bagnore geothermal	MEMBRANES Anton permselective membrane
field	[NASA-CE-159599] 25 p0122 N80-12551
25 p0075 A80-19205	-

HERCURY (HETAL) SUBJECT INDEX

MERCURY (METAL)	METAL SURPACES
Experimental verification of the mercury-iodine	Addition of solar air heaters to a pre-engineered
thermochemical cycle for the production of	metal building [ASME PAPER 79-WA/SOL-33] 25 p0066 A80-18566
hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265	[ASME PAPER 79-WA/SOL-33] 25 p0066 A80-18566 Long-term erosion monitoring of metallic conduits
METAL AIR BATTEBIES	by ultrasonic pulse-echo techniques
Optimization of iron-air and nickel oxide-iron	components of coal gasification and liquefaction
traction batteries 25 p0011 A80-11847	pilot plants [CCNF-790480-1] 25 p0167 N80-15259
Neutral electrolyte aluminium-air battery	EETAL-GAS SYSTEMS
25 p0011 A80-11849	Use of reversible hydrides for hydrogen storage
METAL COATINGS	25 p0042 A80-15991
A new approach to low cost large area selective surfaces for photothermal conversion	Solar energy storage by metal hydride 25 p0053 180-17582
25 p0003 A80-10845	METALLIC PLASMAS
Selective black nickel coatings on zinc surfaces	Conduction-type MHD generator with back-and-forth
by chemical conversion for high solar energy	motion of the hybrid working material
absorption 25 p0060 A80-18126	25 p0030 A80-12898
Thermal aging characteristics of electrodeposited	Some experimental studies on the technical
black chrome solar coatings	developments of low cost silicon solar cells
[SAND-78-2094C] 25 p0 159 N80-14527 HETAL FILMS	25 p0028 A80-12789
Experimental investigation of various barrier	Trace elements from coal combustion: Atmospheric
metals for Schottky barrier and MOS solar cells	emissions
25 p0027 A80-12776	[ICTIS/TR-05] 25 p0106 N80-11180
Ion-stimulated sorption of nitrogen on a	METEOROLOGICAL PARAMETERS
continuously deposited titanium film 25 p0051 A80-17252	The impact of a conceptual solar thermal electric conversion plant on regional meteorological
METAL HYDRIDES	conditions - A numerical study
Hydrogen /Hydride/-air secondary battery	25 p0060 A80-18125
25 p0011 A80-11848	The Building Loads Analysis System Thermodynamics
Hydrogen-powered vs. battery-powered automobiles 25 p0033 A80-13199	(BLAST) program, version 2.0 Input booklet for predicting energy consumption based on
Thermodynamic and structural properties of	structural size and meteorological data
LaNi/5-y/Aly compounds and their related hydrides	[AD-A072435] 25 p0107 N80-11259
25 p0033 A80-13200	Critique of the meteorological and air quality
Hydrogen storage by means of reversible magnesium	baseline monitoring program for the prototype
alloy 25 p0041 A80-15990	oil shale leaseholds. Part A: Comments on the approach taken and recommendations for
Use of reversible hydrides for hydrogen storage	continuing program. Part B: Comments on the
25 p0042 A80-15991	data acquisition and management
Solar energy storage by metal hydride	[DOE/EV-70031/4-PT-A/B] 25 p0148 880-13723
25 p0053 A80-17582 Hydrogen storage as a hydride. Citations from the	METHANE Gas recovery from unconventional sources
international aerospace abstracts data base	25 p0014 180-11958
[NTIS/PS-79/0772/8] 25 p0094 N80-10402	Methane fermentation of aquatic biomass
Closed-cycle hydride engines	25 p0043 A80-16148
[SAND-78-2228] 25 p0125 N80-12572 MRTAL IONS	The microbial production of methane from household wastes - Fixed-bed anaerobic digestion
Photophysical and chemical processes affecting the	25 p0074 A80-18870
stability of the thiazine dye-iron system in	The controlling production mechanism of methane
hydrogen production	gas from coalbeds
25 p0033 A80-13198 NETAL HATRIX COMPOSITES	25 p0085 å80-20499 Methane r∈covery from coalbeds
A review of in situ composites for nonstructural	[DOE/MC-08089-T1] 25 p0093 N80-10387
applications	Energy and economic assessment of anaerobic
25 p0002 A80-10285	digesters and biofuels for rural waste management
METAL OXIDE SEMICONDUCTORS  Some promising aspects regarding solar energy	[PB-296523/4] 25 p0094 N80-10398 Methane recovery from sanitary landfills; gas
conversion with metal oxide photovoltaic cells	recovery system installation and testing
25 p0C11 A80-11853	[PB-296622/4] 25 p0107 N80-11254
Experimental study of MOS solar cells under	HYGAS process update
concentration	[CONF-781045-4] 25 p0120 N80-12200 Biological transformation of light energy into
25 p0026 A80-12769 Effect of thin oxide layer on the current voltage	methane using an anaerobic filter
relations of Schottky barrier solar cells	25 p0 133 N80-13267
25 p0026 A80-12772	Methane recovery from coalbeds project. Technology
Experimental investigation of various barrier	test projects: Evaluation of candidate projects
metals for Schottky barrier and MOS solar cells 25 p0027 A80-12776	[METC-8089-T4] 25 p0135 N80-13290 Economic analysis of small scale bioconversion
Effect of image force on the characteristics of	units in New Mexico
MOS solar cell	[PB-301390/1] 25 p0169 N80-15298
25 p0028 A80-12785	METHYL ALCOHOLS
METAL OXIDES  An update of German non-isothermal coal pyrolysis	Minimum ignition energies and quenching distances of methanol blends
work	25 p0004 A80-11331
25 p0C19 A80-12245	Methanol from coal - An adaption from the past
METAL PARTICLES	25 p0033 A80-13224
The scope of effective medium theory for fine metal particle sclar absorbers	Technico economic study of the use of hydrogen and methanol for road transport
25 p0029 180-12835	25 p0042 A80-15993
Spectrally selective surfaces with coatings	The methanol-air fuel cell - A selective review of
comprised of ultrafine metal particles solar	methanol oxidation mechanisms at platinum
collectors [ARC-CONE-78-212-004] 25 p0 115 N80-11620	electrodes in acid electrolytes
[AFC-CONF-78-212-004] 25 p0115 N80-11620	25 p0042 A80-16146

SUBJECT INDEX MOLTEN SALT ELECTROLYTES

Three potential longwall mining methods for thick coal seams in the western United States
[PB-299568/6] 25 p0170 N80-15544 Research guidance studies to assess gasoline from coal by methanol-to-gasoline and sasol-type Fischer-Tropsch technologies [FE-2447-13] 25 p0093 N80-10388 MINICOMPUTERS Biomass-based alcohol fuels: The near-term potential for use with gasoline [HCP/T4101-03] 25 p0053 Bulletin of the Division of Mechanical Engineering and the National Aeronautical Establishment ---design of a gas pipeline station control system and a railway switch car [AD-A074885] 25 p0182 N80-1602 25 p0CS3 N80-10393 Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled 25 p0182 N80-16022 vehicle MINING Computer software to calculate and map geologic parameters required in estimating coal production costs [CONF-790520-7] The 50,000 mile methanol/gasoline blend fleet study
--- fuel efficiency and exhaust emissions
[CONF-790520-6] 25 p0134 N80-13275 [EPRI-EA-674] [IPRI-EA-674] 25 p0095 N80-10584 Automated longwall guidance and control systems, BTHYL COMPOUNDS Coulombic effects in the quenching of photoexcited Tris/2,2'-bipyridine/ruthenium/II/ and related complexes by methyl viologen --- electron transfer reactions in solar energy conversion [NASA-CR-161329] 25 p0122 N80-12538 Automated longwall guidance and control systems, phase 2, part 2: Vertical control system (VCS) [NASA-CR-161330] 25 p0122 N80-12539 processes Automated longwall guidance and control systems, phase 2, part 2: RCS, PAS, and MCS
[NASA-CR-161331] 25 p0122 N80-1 25 p0040 A80-15358 ICROCLIMATOLOGY Colloquium on the Microclimatic Environment and Habitat, Reims, France, May 21-23, 1979, Proceedings 25 p0122 N80-12540 [NASA-CR-161331] 25 E0122 NOU-12240

Development of mining guidance and control systems
[NASA-TH-78226] 25 p0137 N80-13601

Coal-shale interface detection system
[NASA-CASE-MFS-23720-2] 25 p0152 N80-1423 [NASA-CASE-MFS-23720-2] 25 p0152 N80-14423
Three potential longwall mining methods for thick coal seams in the western United States [FB-299568/6] 25 p0170 N80-15544
Evaluation of the environmental effects of western ICROBLECTRONICS Effect of microwave radiation on the voltage-current characteristics of a variable-thickness Josephson microbridge 25 p0035 A80-14430 surface coal mining, volume 1 [PB-300375/3] ICROORGANISMS Hicrobial deterioration of hydrocarbon fuels from oil shale, coal, and petroleum. 1: Exploratory 25 p0179 N80-15681 MINORITY CARRIERS experiments Measurements of minority-carrier diffusion length [AD-A073761] 25 p0150 N80-14259 in heterojunction solar cells ICROPROCESSORS 25 p0086 A80-20717 COPENCESSORS

Development and testing of the Junkeeper Control

Corporation integrated programmable electronic

controller and hydronics package

[NASA-TH-78244] 25 p0 155 N80-14495 Use of adjustable flat mirrors with flat-plate collectors CONTROLLER and NYGEORIES PACKAGE
[NASA-TM-78244] 25 p0 155 N80-14495
Development and testing of the Rho Sigma
Incorporated microprocessor control subsystem
[NASA-TM-78246] 25 p0 156 N80-14496 [AIAA PAPER 80-0294] 25 c0063 A80-18299 Design of heat pipe cooled laser mirrors with an inverted meniscus evaporator wick
[AIAA PAPER 80-0148] 25 p0064 A80-18 25 p0064 A80-18366 ICROSTRUCTURE MIS (SEMICONDUCTORS) Hicrostructural objectives for high-temperature alloys in advanced energy systems
25 p0002 A80-10306 Relating computer simulation studies with interface state measurements on MIS solar cells 25 p0062 A80-18231 Effects of metallurgical microstructure of armatures on compressed magnetic field generators [SAND-79-0890C] 25 p0137 N80-13375 HISSOURI RIVER (US)

Energy development vs water quality in the upper Colorado and upper Missouri River Easins

[LA-7497-MS] 25 p0117 N60-1 ICROWAVE EQUIPMENT 25 p0117 N80-11641 Microwave heating: Industrial applications. MIXTURES Citations from the engineering data base
[NTIS/PS-79/0632/4] 25 p0102 N80-10674
ICROWAVE SCATTERING Biomass-based alcohol fuels: The near-term potential for use with gasoline [HCP/T4101-03] 25 p0093 25 p0093 N80-10393 Measurements of the density fluctuations using the microwave scattering method --- for toroidal MODELS Dynamic energy system optimization model --- study of computerized simulation domestic energy models [EPRI-BA-1079] 25 p0157 N80-14514 plasmas 25 p0046 A80-16731 MICROWAVE SERSORS

Effect of microwave radiation on the voltage-current characteristics of a MOLDING MATERIALS Cooling aluminum molds using heat pipes
[BDX-613-2039-REV] 25 p0108 N80-11384 variable-thickness Josephson microbridge DS Energy saving in injection molding 25 p0136 N80-13318 25 p0035 A80-14430 [NEL-662] MOLECULAR BEAMS ICROWAVE TRANSMISSION CROWAYS TRANSPIRED COMMENT SYSTEM technology 25 p0048 & 80-17132 The satellite power system concept and program

[SAME PAPER 1305] 25 p0086 A80-20643
Analysis of S-band solid-state transmitters for
the solar power satellite
[NASA-CR-160320] 25 p0096 N80-10600
MINERAL EXPLORATION
SEASAT demonstration experiments with the offshore
oil, gas and mining industries
[NASA-CR-162423] 25 p0108 N80-11532
MINERAL LOGY Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy 25 p0035 A80-13986 MOLECULAR EXCITATION Synthetic molecular organizates 25 p0073 A80-18752 HOLECULAR PUMPS

Behavior of SORE-AC wafer pumps in contaminated H2 plasmas and during maintenance of plasma machines 25 p0082 A80-19672 II NE RALOGY MOLTEN SALT BLECTROLYTES TEN SALT BLECTROLYTES
The performance of molten-carbonate fuel cells
25 p0011 A80-11851
Studies on the Ca-CaCro4 and Li-Al-Fe52 systems
for thermal battery applications
25 p0012 A80-11854 Mineral changes during oil shale retorting 25 p0085 A80-20455 SINES (EXCAVATIONS) Underground coal conversion. Program description [DOE/ET-0100] 25 p0136 N80-13 [DDE/ET-0100] 25 p0136 N80-13293 Review of supporting research at Oak Ridge Recent advances in high temperature primary lithium batteries National Laboratory for underground coal conversion
[CONF-790630-9]  $$25\ p0013\ A80-11863$  A performance and current distribution model for 25 p0136 N80-13295 scaled-up molten carbonate fuel cells 25 p0062 A80-18213

MOLTEN SALTS SUBJECT INDEX

HOLTEN SALTS .	Combustion and turbulence characteristics of
Low-cost central receiver solar power plant using	cyclone combustors for burning low calorific
molten salt as a heat transfer and storage medium 25 p0C17 A80-11986	value fuels [AIAA PAPEB 80-0075] 25 p0076 A80-19275
Modeling of a thermal wall panel using phase	The controlling production mechanism of methane
change materials	gas from coalbeds
25 p0021 A80-12439 An incongruent heat-of-fusion system - CaCl2-6H2O	25 p0085 A80-20499 Natural gas reserves estimates: A good federal
<ul> <li>made congruent through modification of the</li> </ul>	program emerging, but problems and duplications
<pre>chemical composition of the system during melting</pre>	persist
25 p0C29 A80-12823	[PB-296628/2] 25 p0103 N80-10679 Remote sensing of LNG spill vapor dispersion using
Molten salt pyrolysis of latex for hydrocarbon	Raman LIDAR
fuel production [NASA-CASE-NPO-14315-1] 25 p0092 N80-10361	[UCRL-13984] 25 p0103 N80-10689 National Gas Survey report to the Federal Energy
MOTABDEMON 522 MIC 14212 1	Regulatory Commission by the Supply-Technical
Current collectors for sodium-sulphur batteries	Advisory Task Force on nonconventional natural
25 p0013 A80-11867	gas resources [DOF/FEEC-0010] 25 p0107 N80-11251
Color graphic controls for the solar central	Fuel choice and aggregate energy demand in the
receiver test facility 25 p0022 A80-12626	commercial sector electricity, natural gas,
MONTANA	and fuel oil [ORNL/CON-27] 25 p0126 N80-12580
Bell Creek residual oil saturation technology test	Devonian paleocurrents of the Applachian basin
[BETC-2180-4] 25 p0108 N80-11546	gas production [METC/CR-79/22] 25 p0149 N80-13735
Space light - Space industrial enhancement of the	Energy from the West: Energy resource development
solar option	systems report. Volume 5: Oil and natural gas
25 p0073 A80-18797	[PB-299181/8] 25 p0152 N80-14467 Commercialization strategy report for recovery of
Ethyl alcohol production and use as a motor fuel	natural gas from unconventional sources
Book . 25 p0050 A80-17241	[TID-28848-DRAFT] 25 p0168 N80-15287
Environmental aspects of alternative fuels	Bulletin of the Division of Mechanical Engineering and the National Aeronautical Establishment
utilization for highway vehicles	design of a gas pipeline station control system
[UCRL-81841] 25 p0120 N80-12201 Applications of fuel cells in transportation	and a railway switch car [AD-A074885] 25 p0182 N80-16022
[LA-UR-79-628] 25 p0159 N80-14526	BEBRASKA
Environmental planning and assessment for highway vehicle use to alcohol fuels	Test plan for the Mead 25-kW Photovoltaic Flexible
[CONF-790520-2] 25 p0168 N80-15281	Test Facility, 1979 [COO-4094-53] 25 p0146 N80-13692
Investigation of the effects of the installation	NETWORK ANALYSIS
of an oxidation catalyst on a diesel powered vehicle	Power loss in photovoltaic arrays due to mismatch in cell characteristics
[PB-299928/2] 25 p0180 N80-15699	25 p0028 A80-12815
MOD	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/
MOD Analysis and simulated diagenesis of kerogen in a	25 p0028 A80-12815
MOD Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BRANS Selected topics on surface effects in fusion
MOD Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CII/ 25 p0030 A80-12853 NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters 25 p0043 A80-16262
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens  25 p0085 A80-20378	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BRANS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters 25 p0043 A80-16262 Diagnostics for mirror machines
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N  B-N JUNCTIONS Analysis and evaluation of isotype heterojunction	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters 25 p0043 A80-16262
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0 085 A80-20378  N N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CII/ 25 p0030 A80-12853 NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters 25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N  B-N JUNCTIONS Analysis and evaluation of isotype heterojunction	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters 25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N  N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells 25 p0087 A80-20734  NAPHTHALBNB Heat transfer to a melting solid with application	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CII/ 25 p0030 A80-12853 NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters 25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells 25 p0087 A80-20734 NAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters 25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N  N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells 25 p0087 A80-20734  NAPHTHALBNE Heat transfer to a melting solid with application to thermal energy storage systems Elucidation of coal structural components by short	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CII/ 25 p0030 A80-12853 NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N  N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells 25 p0087 A80-20734  NAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems 25 p0036 A80-14667  Elucidation of coal structural components by short residence-time extractive liquefaction	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BRAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N  N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells 25 p0087 A80-20734  NAPHTHALBNE Heat transfer to a melting solid with application to thermal energy storage systems Elucidation of coal structural components by short	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CII/ 25 p0030 A80-12853 NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N  N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells  25 p0087 A80-20734  NAPHTHALBNB Heat transfer to a melting solid with application to thermal energy storage systems  25 p0036 A80-14667 Elucidation of coal structural components by short residence-time extractive liquefaction  25 p0119 N80-12188  NASA PROGRAMS NASA authorization for fiscal year 1980. Part 4:	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BRAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines  25 p0043 A80-16262 Diagnostics for mirror machines  26 p0045 A80-16720 Doublet III neutral beam injection system overview and status report  27 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks  28 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection  27 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0 085 A80-20378  N N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells 25 p0 087 A80-20734  NAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems 25 p0 036 A80-14667 Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0 119 N80-12188  NASA PROGRAMS NASA authorization for fiscal year 1980. Part 4: Index	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853  NEUTRAL BRAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] 25 p0104 N80-10922
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N  N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells  25 p0087 A80-20734  NAPHTHALBNB Heat transfer to a melting solid with application to thermal energy storage systems  25 p0036 A80-14667  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  NASA PROGRAMS NASA authorization for fiscal year 1980. Part 4: Index [GPO-51-336] 25 p0104 N80-10964 An evaluation of the NASA Tech House, including	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BRAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] BEUTRON PLOX DEBSITY Some implications of a cellular structure in
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0 085 A80-20378  N  N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells  25 p0 087 A80-20734  NAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems  25 p0 036 A80-14667 Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0 119 N80-12188  NASA PROGRAMS  NASA authorization for fiscal year 1980. Part 4: Index [GPO-51-336] An evaluation of the NASA Tech House, including live-in test results, volume 1	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BRAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] SEOURON FLOX DRESITY Some implications of a cellular structure in minimum thickness fusion reactor blankets
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N  N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells  25 p0087 A80-20734  NAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems  25 p0036 A80-14667  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  NASA PROGRAMS NASA authorization for fiscal year 1980. Part 4: Index [GPO-51-336] 25 p0104 N80-10964 An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TF-1564] 25 p0109 N80-11559 Status of the DOE/NASA critical gas turbine	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BRAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] BEUTRON PLOX DEBSITY Some implications of a cellular structure in
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells 25 p0087 A80-20734  NAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems 25 p0036 A80-14667 Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  NASA PROGRAMS NASA authorization for fiscal year 1980. Part 4: Index [GPO-51-336] An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TF-1564] Status of the DOE/NASA critical gas turbine research and technology project	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BRAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTEIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] BULL-NUREG-25635] BUITRON FILM DEBSITT Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663 NEUTRON IRRADIATION Diffusion of tritium in neutron-irradiated
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N  N  N  N  N  N  N  N  N  N  N  N  N	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CII/ 25 p0030 A80-12853  NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] SEUTRON FLOX DEBSITY Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663 NEUTRON IRRADIATION Diffusion of tritium in neutron-irradiated microcrystalline Beta-Li5A104
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells  25 p0087 A80-20734  NAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems  25 p0036 A80-14667 Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  NASA PROGRAMS  NASA authorization for fiscal year 1980. Part 4: Index [GPO-51-336] An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TF-1564] Status of the DOE/NASA critical gas turtine research and technology project [NASA-TH-79307]  NATIONS World energy data system (WENDS). Volume 8:	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BRAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] BULL-NUREG-25635] SOME implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663 NEUTRON FIRADIATION Diffusion of tritium in neutron-irradiated microcrystalline Beta-Li5A104
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N  N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells  25 p0087 A80-20734  WAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems  25 p0036 A80-14667 Elucidation of coal structural components by short residence-time extractive liquefaction  25 p0119 N80-12188  NASA PROGEAMS NASA authorization for fiscal year 1980. Part 4: Index [GPO-51-336] An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TF-1564] Status of the DOE/NASA critical gas turtine research and technology project [NASA-TH-79307] STATIONS World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853  NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] BEOTRON FLUX DEBSITY Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663 NEUTRON IRRADIATION Diffusion of tritium in neutron-irradiated microcrystalline Beta-Li5Al04  **BEUTRON PHYSICS** Optimization of neutron yield in conical system at
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells  25 p0087 A80-20734  NAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems  25 p0036 A80-14667 Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  NASA PROGRAMS NASA authorization for fiscal year 1980. Part 4: Index [GPO-51-336] An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TF-1564] Status of the DOE/NASA critical gas turtine research and technology project [NASA-TR-79307]  NATURAL GAS NATURAL GAS NATURAL GAS	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BRAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] BULL-NUREG-25635] SOME implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663 NEUTRON FIRADIATION Diffusion of tritium in neutron-irradiated microcrystalline Beta-Li5A104
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells 25 p0087 A80-20734  WAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems 25 p0036 A80-14667 Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  NASA PROGRAMS NASA authorization for fiscal year 1980. Part 4: Index [GPO-51-336] An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TF-1564] Status of the DOE/NASA critical gas turtine research and technology project [NASA-TM-79307] STATUONS World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PNS-79-2-VOL-8] STATUBAL GAS Gas recovery from unconventional sources	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853  NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] BEOTRON FLOX DEBSITY Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663 NEUTRON IERADIATION Diffusion of tritium in neutron-irradiated microcrystalline Beta-Li5Al04  **BEUTRON PHYSICS** Optimization of neutron yield in conical system at explosion-induced compression 25 p0007 A80-11545 Neutronics in the toroidal belt-geometry of a
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells  25 p0087 A80-20734  NAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems  25 p0036 A80-14667 Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  NASA PROGRAMS NASA authorization for fiscal year 1980. Part 4: Index [GPO-51-336] An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TF-1564] Status of the DOE/NASA critical gas turtine research and technology project [NASA-TR-79307]  NATURAL GAS NATURAL GAS NATURAL GAS	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0043 A80-16262 Diagnostics for mirror machines 25 p0043 A80-16262 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] SEUTRON FLOI DERSITY Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663 NEUTRON IRRADIATION Diffusion of tritium in neutron-irradiated microcrystalline Beta-Li5A104  NEUTRON PHYSICS Optimization of neutron yield in conical system at explosion-induced compression 25 p0007 A80-11545 Neutronics in the toroidal belt-geometry of a screw pinch reactor
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells  25 p0087 A80-20734  WAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems  25 p0036 A80-14667 Elucidation of coal structural components by short residence-time extractive liquefaction  25 p0119 N80-12188  NASA PROGRAMS NASA authorization for fiscal year 1980. Part 4: Index  [GPO-51-336] 25 p0104 N80-10964 An evaluation of the NASA Tech House, including live-in test results, volume 1  [NASA-TF-1564] 25 p0109 N80-11559 Status of the DOE/NASA critical gas turbine research and technology project  [NASA-TH-79307]  WORLDEN COUNTY OF THE STATIONS  World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU  [ANL-PRS-79-2-VOL-8] 25 p0139 N80-13630  NATURAL GAS  Gas recovery from unconventional sources 25 p0014 A80-11958 The European economic community's policy concerning natural gas, coal and new sources of	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853  NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NURBG-25635] EDUTRON FLOX DEBSITY Some implications of a cellular structure in minimum thickness fusion reactor blankets ENUTRON IRRADIATION Diffusion of tritium in neutron-irradiated microcrystalline Beta-Li5Al04  NEUTRON PHYSICS Optimization of neutron yield in conical system at explosion-induced compression Neutronics in the toroidal belt-geometry of a screw pinch reactor  25 p0081 A80-19657  NEUTRON SOURCES
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N  N  N  N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells  25 p0087 A80-20734  NAPHTHALBNB Heat transfer to a melting solid with application to thermal energy storage systems  25 p0036 A80-14667  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  NASA PROGRAMS NASA authorization for fiscal year 1980. Part 4: Index [GPO-51-336] 25 p0104 N80-10964 An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TF-1564] 25 p0109 N80-11559 Status of the DOE/NASA critical gas turbine research and technology project [NASA-TH-79307]  NATIONS World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PHS-79-2-VOL-8] 25 p0139 N80-13630  NATURAL GAS Gas recovery from unconventional sources 25 p0114 A80-11958 The European economic community's policy concerning natural gas, coal and new sources of energy	A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853  NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617  NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] 25 p0104 N80-10922 NEUTRON PLUS DERSITY Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663 NEUTRON PHYSICS Optimization of tritium in neutron-irradiated microcrystalline Beta-Li5A104  NEUTRON PHYSICS Optimization of neutron yield in conical system at explosion-induced compression 25 p0007 A80-11545 Neutronics in the toroidal belt-geometry of a screw pinch reactor 25 p0081 A80-19657 NEUTRON SOURCES Experimental studies of neutron multiplication
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N N N N N N N N N N N N N N N N N N	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853  NEUTRAL BEAMS Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTRIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NURBG-25635] EDUTRON FLOX DEBSITY Some implications of a cellular structure in minimum thickness fusion reactor blankets ENUTRON IRRADIATION Diffusion of tritium in neutron-irradiated microcrystalline Beta-Li5Al04  NEUTRON PHYSICS Optimization of neutron yield in conical system at explosion-induced compression Neutronics in the toroidal belt-geometry of a screw pinch reactor  25 p0081 A80-19657  NEUTRON SOURCES
Analysis and simulated diagenesis of kerogen in a recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens 25 p0085 A80-20378  N N N-N JUNCTIONS Analysis and evaluation of isotype heterojunction solar cells  25 p0087 A80-20734  NAPHTHALENE Heat transfer to a melting solid with application to thermal energy storage systems  25 p0036 A80-14667 Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  NASA PROGRAMS NASA authorization for fiscal year 1980. Part 4: Index [GPO-51-336] An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TF-1564] Status of the DOE/NASA critical gas turtine research and technology project [NASA-TH-79307] NATIONS World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] Sas recovery from unconventional sources 25 p0014 A80-11958 The European economic community's policy concerning natural gas, coal and new sources of energy 25 p0032 A80-13175	25 p0028 A80-12815 A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct converters  25 p0043 A80-16262 Diagnostics for mirror machines 25 p0045 A80-16720 Doublet III neutral beam injection system overview and status report 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0079 A80-19600 150-kV, 80-A solid state power supply for neutral beam injection 25 p0080 A80-19617 NEUTRON DISTEIBUTION One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NURBCG-25635] SEUTRON PLOY DEBSITY Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663 NEUTRON IRRADIATION Diffusion of tritium in neutron-irradiated microcrystalline Beta-Li5A104  NEUTRON PHYSICS Optimization of neutron yield in conical system at explosion-induced compression Neutronics in the toroidal belt-geometry of a screw pinch reactor 25 p0081 A80-19657 NEUTRON SOUBCES Experimental studies of neutron multiplication from beryllium/n, 2n/ reaction in CTR blankets

25 p0034 A80-13589

SUBJECT INDEX NUCLEAR PUELS

W. T.	
NEVADA	Pilot scale evaluation of NOx combustion control
Evaluation of Baltazor known geothermal resources area, Nevada	for pulverized coal, phase 2
25 p0076 A80-19206	[FB-299325/1] 25 p0180 N80-15687 HONAQUROUS ELECTROLYTES
Energy system in the Far West: Impacts of the	Design and development of a 30 watt solid polymer
National Energy Act of 1978	electrolyte fuel cell power source fueled with
[UCRL-52754] 25 p0 140 N80-13638 NEW ENGLAND (US)	calcium hydride
National Energy Act of 1978: A regional assessment	[AD-A071157] 25 p0139 N80-13625
[PB-296479/9] 25 p0130 N80-12615	Solid electrolyte fuel cell for electric power generation monaqueous electrolyte fuel cells
HEM HEXICO	development for electric power plants
Safety and environmental implications DOF/Sandia	[BNL-26238] 25 p0 158 N80-14522
Midtemperature Solar Systems Test Facility	NONEQUILIBRIUM PLON
[SAND-78-2292C] 25 p0097 N80-10609 Midtemperature Solar Systems Test Facility (MSSTF)	Effect of off-design operation of MHD generators
project test results: Phase 4A MSSTF system	on NC/x/ chemical kinetics [AIAA PAPER 80-0254] 25 p0077 A80-19310
operation	HONEQUILIBRIUM PLASMAS
[SAND-78-1088] 25 p0114 N80-11613	Dynamic suppression of ionization instability
Hot dry rock geothermal energy development program [LA-7807-HDR] 25 p0 144 N80-13673	in MHD devices of Faraday and Hall types
[LA-7807-EDR] 25 p0144 N80-13673 Deep terrestrial heat flow measurements in New	NONEQUILIBRIUM THERMODYNAMICS 25 p0043 A80-16484
Mexico and neighboring geologic areas	Nonequilibrium thermodynamics of fuel cells - Heat
[PB-299489/5] 25 p0153 N80-14471	release mechanisms and voltage
Economic analysis of small scale bioconversion	25 p0084 A80-20274
units in New Mexico [PB-301390/1] 25 p0169 N80-15298	HOHLINEARITY
Use of geothermal energy for desalination in New	Newton's method for generalized equations and the FIES energy model
Mexico: A feasibility study	25 p0149 N80-13672
[PB-299271/7] 25 p0179 N80-15645	NONUNIFORM PLASMAS
BEN TORK	Simplified theory of nonuniform electrical
Barriers to the application of wind energy conversion systems in urban settings	conduction for an open cycle MHD generator with
25 p0 155 N80-14494	shaped magnetic induction
NEW ZEALAND	25 p0047 A80-16997 Wave absorption and superreflectivity of laser
An estimate of the resource potential of New	plasmas due to electromagnetic structure
Zealand geothermal fields for power generation	resonances
NEWTON-RAPHSON METHOD	25 p0057 A80-17871
Newton's method for generalized equations and the	Theory of cavitons in laser-irradiated plasmas 25 p0057 A80-17872
PIES energy model	HUCLEAR ELECTRIC POWER GENERATION
25 p0149 N80-13872	A mathematical model for a future hydrogen power
NICKEL Salastina black sighal sastina as sign and	system
Selective black nickel coatings on zinc surfaces by chemical conversion for high solar energy	25 p0001 A80-10223
absorption	United States energy alternatives to 2010 and beyond - The CONAFS study
25 p0060 A80-18126	25 p0008 A80-11827
HICKEL ALLOYS	Nuclear power program information and data:
Improvement of the high-rate discharge behaviour	Update, March - April 1979
of the nickel electrode 25 p0010 A80-11841	[DOE/TIC-10119] 25 p0166 N80-14894
NICKEL CADMION BATTERIES	Novel scheme for making cheap electricity with nuclear energy
Pailure mechanisms of vented nickel-cadmium cells	[UCID-18153-REV-1] 25 p0171 N80-15564
in overcharge	Nuclear strategy of the Department of Energy
25 p0010 A80-11840 High-efficiency alkaline accumulator with cadmium	[DOE/ER-0025/D] 25 p0175 N80-15605
mass treated with oxalic acid	NUCLEAR ENERGY Are large concentration of atomic H storable in
25 p0010 A80-11842	tritium-impregnated solid in H2 below 0.10 K
Plastic bonded electrodes for nickel-cadmium	25 p0072 A80-18728
accumulators. I - Cadmium electrode	World Energy Data System (WENDS). Volume 7:
25 p0043 A80-16147 NICKEL OXIDES	Nuclear facility profiles, AG-CH
Non-sintered plastic-bonded nickel oxide	[ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629 World energy data system (WENDS). Volume 8:
electrodes with open structure and their	Nuclear facility profiles, CO-HU
electrochemical performance	[ANL-PMS-79-2-VOL-8] 25 p0139 M80-13630
25 p0009 A80-11839 Optimization of iron-air and nickel oxide-iron	NUCLEAR PISSION
traction batteries	World Energy Data System (WENDS). Volume 11: Nuclear fission program summaries
25 p0011 A80-11847	[ANL-PMS-79-2-VOL-11] 25 p0124 N80-12562
HIGEB	Outlook for nuclear fission energy
Solar energy commercialization for African countries	[CONF-7811126-1] 25 p0157 N80-14509
[HCF/CS-2522] 25 p0127 N80-12591 NIGERIA	Pission energy program of the U.S. Department of
Solar energy commercialization for African countries	Energy, FY 1980 [COE/ET-0089] 25 p0180 N80-15893
[HCF/CS-2522] 25 p0127 N80-12591	LUCE/ET-0089] 25 p0 180 N80-15893 NUCLEAR FUEL REPROCESSING
HIOBIUM ALLOYS	Fuel production characteristics of fusion hybrid
Preparation of superconducting coil through	reactors
composite 25 p0040 180-15512	**************************************
NITROGEN LASERS	Tandem mirror reactors for controlled fusion
Laboratory evaluation of two laser fluorosensor	- Lot Contioned Insign
	25 n0054 480-17887
systems	25 p0059 A80-17887 Two-dimensional heating analysis of fusion
25 p0031 A80-12964	Two-dimensional heating analysis of fusion blankets for synfuel production
25 p0031 A80-12964 NITROGEN OXIDES	Two-dimensional heating analysis of fusion blankets for synfuel production 25 p0082 A80-19665
25 p0031 A80-12964	Two-dimensional heating analysis of fusion blankets for synfuel production 25 p0082 A80-19665 World Energy Data System (WENDS). Volume 7:
NITROGEN OXIDES  Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPES 80-0254]  25 p0031 A80-12964  MHD generators 25 p0077 A80-19310	Two-dimensional heating analysis of fusion blankets for synfuel production 25 p0082 A80-19665 World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CB
25 p0031 A80-12964  NITROGEN OXIDES  Effect of off-design operation of HBD generators on NO/x/ chemical kinetics [Alaa PAPEE 80-0254] 25 r0077 A80-19310  Technical assessment of thermal DeNox process	Two-dimensional heating analysis of fusion blankets for synfuel production  25 p0082 A80-19665 World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CB [ANL-PMS-79-2-VOL-7] World energy data system (WENDS). Volume 8:
NITROGEN OXIDES  Effect of off-design operation of MBD generators on NO/x/ chemical kinetics [ATAA PAPES 80-0254]  Technical assessment of thermal DeNOx process for coal fired boilers	Two-dimensional heating analysis of fusion blankets for synfuel production  25 p0082 A80-19665  World Energy Data System (WENDS). Volume 7:  Nuclear facility profiles, AG-CB  [ANL-FHS-79-2-VOL-7] 25 p0139 N80-13629  World energy data system (WENDS). Volume 8:  Nuclear facility profiles, CO-BU
25 p0031 A80-12964  NITROGEN OXIDES  Effect of off-design operation of HBD generators on NO/x/ chemical kinetics [Alaa PAPEE 80-0254] 25 r0077 A80-19310  Technical assessment of thermal DeNox process	Two-dimensional heating analysis of fusion blankets for synfuel production  25 p0082 A80-19665 World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CB [ANL-PMS-79-2-VOL-7] World energy data system (WENDS). Volume 8:

NUCLEAR PUSION SUBJECT INDEX

Evaluation of fuel resources and requirements for

the magnetic fusion energy program
[MLM-2419] 25 p0164 N80-14570
Nuclear power program information and data:
Update, March - April 1979
[DOZ/TIC-10119] 25 p0166 N80-14894
NUCLEAR PUSION

Preliminary assessment of industrial needs for an advanced ocean technology
[NASA-CR-162435] 25 p0118 880-11747
Development of in situ marine seismic and geotechnical instrumentation systems
[SAND-79-0868C] 25 p0137 N80-13431
OCEAN CURRENTS

NAM CURRENTS
Waves, currents, tides - Froblems and prospects
25 p0049 A80-17134

Search for fusion power	OCEAN DATA ACQUISITIONS SYSTEMS
[UCRL-81890] 25 p0132 N80-12900	Development of in situ marine seismic and
Pusion power program	geotechnical instrumentation systems
[ANL/PPP-78-4] 25 p0 149 N80-13941	[SAND-79-0868C] 25 p0137 N80-13431
Evaluation of fuel resources and requirements for	OCEAN THERMAL ENERGY CONVERSION
the magnetic fusion energy program	Salinity gradient power - Otilizing vapor pressure
[MLH-2419] 25 p0164 N80-14570 Pusion energy for hydrogen production systems	differences
engineering of a process for hydrogen production	25 p0003 A80-10524 Is there a chance for OTFC
from nuclear fusion	25 p0007 A80-11394
[BNL-24906] 25 p0180 N80-15897	Energy from ocean thermal gradients
Pulsed power for fusion	25 p0044 A80-16652
[SAND-79-0933C] 25 p0181 N80-15908	Ocean thermal energy conversion /OTEC/ - Social
Superconductivity for mirror fusion	and environmental issues
[UCRL-81693] 25 p0 181 N80-15933	25 p0049 A80-17135
Fusion: A possible option for solving long-term	Ocean energy - Forms and prospects
energy problems	25 p0061 A80-18162
[PB-300692/1] 25 p0181 N80-15946	OTEC - Solar energy from the sea
NUCLEAR HEAT	25 p0085 A80-20424
Possible improvements to a basic cellular thin blanket fusion reactor configuration	OTEC - A comprehensive energy analysis
25 p0081 A80-19664	25 p0085 A80-20456 Utilization of ocean heat for hydrogen production
General-purpose heat source project space nuclear	25 p0086 A80-20686
safety program and radioisotopic terrestrial	A thermodynamic assessment of OTEC open-cycle
safety program plutonium oxide	power systems
[LA-7519-PR] 25 p0118 N80-11889	25 p0088 A8C-20886
NUCLEAR POWER PLANTS	OTEC thermal resource report for Caribbean Sea
Laser fusion - Energy application perspectives	Plant Ship 13-15 degrees N 75-80 degrees N
25 p0030 A80-12883	[HCP/T2898] 25 p0113 N80-11599
Evaluation of nuclear power plant siting by	Foam solar sea power: A physical investigation
probabilistic assessment of environmental impact	25 p0122 N80-12548
[VTT-EN-24] 25 p0118 N80-11891	Thermoelectric ocean thermal energy conversion
Land-based application of an OTEC open-cycle power	[SERI/TP-35-254] 25 p0124 N80-12564
system	Ocean Thermal Energy Conversion (CTEC) platform
[CONF-790631-3] 25 p0 144 N80-13676	configuration and integration, executive summary
Nuclear power program information and data:	[DOE/ET-4064-1] 25 p0 128 N80-12600
Update, March - April 1979	Condensation and evaporation heat transfer with
[DOF/TIC-10119] 25 p0166 N80-14894	low-boiling temperature fluids for ocean
Analysis of potential implementation levels for	thermal and geothermal energy conversion
waste heat utilization in the nuclear power	[CONF-790539-1] 25 p0137 N80-13412
industry	OTEC platform configuration and integration.
[ORNL/TM-63-2] 25 p0177 N80-15625	Volume 1: Customs engineering and internation
	Volume 1: Systems engineering and integration
NUCLEAR BEACTIONS	[TID-29418] 25 p0142 N80-13655
NUCLEAR REACTIONS Use of nuclear techniques in the characterization	[TID-29418] 25 p0142 N80-13655 OTFC thermal response report for Pacific plant
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces	[TID-29418] 25 p0142 N80-13655 OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0004 A80-20141	[TID-29418] 25 p0142 N80-13655 OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [BCP/T2898-01/3] 25 p0142 N80-13656
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0004 A80-20141	[TID-29418] 25 p0142 N80-13655 OTEC thermal response report for Facific plant ship, 5 to 10 deg N 90 to 95 deg W [HCP/T2898-01/3] 25 p0142 N80-13656 Experimental and analytical OTEC studies at OBNL
NUCLEAR BEACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS World Energy Data System (WENDS). Volume 7:	[TID-29418] OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [RCP/T2898-01/3] Experimental and analytical OTEC studies at ORNL [CONF-790631-1] 25 p0143 N80-13666
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0Ce4 A80-20141  NUCLEAR REACTORS World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH	[TID-29418] 25 p0142 N80-13655 OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [BCF/T2898-01/3] 25 p0142 N80-13656 Experimental and analytical OTEC studies at OBNL [CONF-790631-1] 25 p0143 N80-13666 Land-based application of an OTEC open-cycle power
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0004 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:  Nuclear facility profiles, AG-CH  [ANL-PMS-79-2-VOL-7]  25 p0139 N80-13629	[TID-29418] 25 p0142 N80-13655 OTEC thermal response report for Facific plant ship, 5 to 10 deg N 90 to 95 deg W [HCP/T2898-01/3] 25 p0142 N80-13656 Experimental and analytical OTEC studies at OBNL [CONF-790631-1] 25 p0143 N80-13666 Land-based application of an OTEC open-cycle power system
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:  Nuclear facility profiles, AG-CH  [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [RCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at ORNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycle power system [CONF-790631-3] 25 p0144 N80-13676
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0Ce4 A80-20141  NUCLEAR REACTORS World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [BCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at OBNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycle power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0004 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH  [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system  [LA-UR-79-1242] 25 p0149 N80-13906	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [HCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at OBNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycle power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696
NUCLEAR BEACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0084 A80-20141  NUCLEAR BEACTORS World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242]  NUCLEAR RESEARCH	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [RCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at ORNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycle power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration,
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCE Inertial confinement fusion research at Osaka	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [BCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at CBNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycl∈ power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0024 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [HCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at OBNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycle power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711
NUCLEAR BEACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR BEACTORS World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868 World energy data system (WENDS). Volume 8:	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [RCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at OBNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycle power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration,
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [RCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at ORNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycl∈ power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration, appendixes to volume 2
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0024 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [BCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at ORNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycle power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-APF] 25 p0147 N80-13713
NUCLEAR BEACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR BEACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (NENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL ANALYSIS	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [RCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at OBNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycle power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-vol-2-APP] 25 p0147 N80-13713  OTEC platform configuration and integration. Volume
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:     Nuclear facility profiles, AG-CH     [ANL-PMS-79-2-VOL-7]	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [BCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at OBNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycle power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-vOL-2-APP] 25 p0147 N80-13713  OTEC platform configuration and integration. Volume 3: Project plan
NUCLEAR BEACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR BEACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (NENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL ANALYSIS	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [BCF/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at ORNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycle power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-VOL-2-APP] 25 p0147 N80-13713  OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL ANALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy 25 p0051 A80-17307	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [RCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at OBNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycl∈ power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-voL-2-APP] 25 p0147 N80-13713  OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-voL-3] 25 p0148 N80-13714 Fifth Ocean Thermal Energy Conversion Conference,
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL ANALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy 25 p0051 A80-17307	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [RCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at CBNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycl€ power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-vOL-2-APP] 25 p0147 N80-13713  OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-vOL-3] 25 p0148 N80-13714  Fifth Ocean Thermal Energy Conversion Conference, volume 2, sections 4-5
NUCLEAR BEACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR BEACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL ANALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [BCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at ORNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycle power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-vol-2-APP] 25 p0147 N80-13713  OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-vol-3] 25 p0148 N80-13714  Fifth Ocean Thermal Energy Conversion Conference, volume 2, sections 4-5 [CONF-780236-P2] 25 p0162 N80-14553
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL AHALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [RCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at CBNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycl€ power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-vOL-2-APP] 25 p0147 N80-13713  OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-vOL-3] 25 p0148 N80-13714  Fifth Ocean Thermal Energy Conversion Conference, volume 2, sections 4-5
USE of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:     Nuclear facility profiles, AG-CH     [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system     [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH     Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8:     Nuclear facility profiles, CO-HU     [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL ANALYSIS     Numerical computation of singular control problems with application to optimal heating and cooling by solar energy	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL ANALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy 25 p0C51 A80-17307  Numerical modeling of LNG spill phenomena [UCRI-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [RCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at OBNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycl∈ power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-voL-2-APP] 25 p0147 N80-13713  OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-voL-3] 25 p0148 N80-13714  Fifth Ocean Thermal Energy Conversion Conference, volume 2, sections 4-5 [CONF-780236-P2] 25 p0162 N80-14553  OTEC-1 test conductor program project management quality control [CONF-780550-9] 25 p0163 N80-14563  Alternate cycles applied to ocean thermal energy
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:     Nuclear facility profiles, AG-CH     [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system     [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH     Inertial confinement fusion research at Csaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8:     Nuclear facility profiles, CO-HU     [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL AHALYSIS     Numerical computation of singular control problems with application to optimal heating and cooling by solar energy 25 p0051 A80-17307  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL ANALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy 25 p0C51 A80-17307  Numerical modeling of LNG spill phenomena [UCRI-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:     Nuclear facility profiles, AG-CH     [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system     [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH     Inertial confinement fusion research at Csaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8:     Nuclear facility profiles, CO-HU     [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL AHALYSIS     Numerical computation of singular control problems with application to optimal heating and cooling by solar energy 25 p0051 A80-17307  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory	[TID-29418] 25 p0142 N80-13655  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W [RCP/T2898-01/3] 25 p0142 N80-13656  Experimental and analytical OTEC studies at OBNL [CONF-790631-1] 25 p0143 N80-13666  Land-based application of an OTEC open-cycle power system [CONF-790631-3] 25 p0144 N80-13676  OTEC power systems [CONF-790444-2] 25 p0146 N80-13696  OTEC platform configuration and integration, executive summary [DCE/ET-4065/1] 25 p0147 N80-13711  OTEC platform configuration and integration, appendixes to volume 2 [DOE/ET-4065/1-vol-2-APP] 25 p0147 N80-13713  OTEC platform configuration and integration. Volume 3: Project plan [DOE/ET-4065/1-vol-3] 25 p0148 N80-13714  Fifth Ocean Thermal Energy Conversion Conference, volume 2, sections 4-5 [CONF-780236-P2] 25 p0162 N80-14553  OTEC-1 test conductor program project management quality control [CONF-780550-9] 25 p0163 N80-14563 Alternate cycles applied to ocean thermal energy conversion [SERI/TF-34-180] 25 p0172 N80-15571 Environmental development plan ocean thermal
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:     Nuclear facility profiles, AG-CH     [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system     [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH     Inertial confinement fusion research at Csaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8:     Nuclear facility profiles, CO-HU     [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL AHALYSIS     Numerical computation of singular control problems with application to optimal heating and cooling by solar energy 25 p0051 A80-17307  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:     Nuclear facility profiles, AG-CH     [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system     [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH  Inertial confinement fusion research at Osaka	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:     Nuclear facility profiles, AG-CH     [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system     [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH  Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8:     Nuclear facility profiles, CO-HU     [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMPERICAL ANALYSIS  Numerical computation of singular control problems with application to optimal heating and cooling by solar energy  25 p0C51 A80-17307  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Csaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL AHALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy 25 p0051 A80-17307  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628  OCERA BOTTOM Heat flow and heat transfer conditions in the	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:     Nuclear facility profiles, AG-CH     [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system     [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8:     Nuclear facility profiles, CO-HU     [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMEBICAL AHALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy  25 p0051 A80-17307  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628  OCEAN BOTTOM  Heat flow and heat transfer conditions in the bottom sediments of the equatorial Indian Ocean	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Csaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL AHALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy 25 p0051 A80-17307  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628  OCERA BOTTOM Heat flow and heat transfer conditions in the	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:     Nuclear facility profiles, AG-CH     [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system     [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8:     Nuclear facility profiles, CO-HU     [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMEBICAL AHALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy  25 p0051 A80-17307  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628  OCEAN BOTTOM  Heat flow and heat transfer conditions in the bottom sediments of the equatorial Indian Ocean	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:     Nuclear facility profiles, AG-CH     [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system     [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8:     Nuclear facility profiles, CO-HU     [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMEBICAL AHALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy  25 p0051 A80-17307  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628  OCEAN BOTTOM  Heat flow and heat transfer conditions in the bottom sediments of the equatorial Indian Ocean	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:     Nuclear facility profiles, AG-CH     [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system     [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8:     Nuclear facility profiles, CO-HU     [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMEBICAL AHALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy  25 p0051 A80-17307  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628  OCEAN BOTTOM  Heat flow and heat transfer conditions in the bottom sediments of the equatorial Indian Ocean	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0C84 A80-20141  NUCLEAR REACTORS  World Energy Data System (WENDS). Volume 7:     Nuclear facility profiles, AG-CH     [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629  Baseline design of the thermoelectric reactor space power system     [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Osaka 25 p0057 A80-17868  World energy data system (WENDS). Volume 8:     Nuclear facility profiles, CO-HU     [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMEBICAL AHALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy  25 p0051 A80-17307  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628  OCEAN BOTTOM  Heat flow and heat transfer conditions in the bottom sediments of the equatorial Indian Ocean	TID-29418   25 p0142 N80-13655
NUCLEAR REACTIONS Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0C84 A80-20141  NUCLEAR REACTORS World Energy Data System (WENDS). Volume 7: Nuclear facility profiles, AG-CH [ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629 Baseline design of the thermoelectric reactor space power system [LA-UR-79-1242] 25 p0149 N80-13906  NUCLEAR RESEARCH Inertial confinement fusion research at Csaka 25 p0057 A80-17868 World energy data system (WENDS). Volume 8: Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630  NUMERICAL AHALYSIS Numerical computation of singular control problems with application to optimal heating and cooling by solar energy 25 p0051 A80-17307  Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625  NUMERICAL CONTROL An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628  OCCEAN BOTTOM Heat flow and heat transfer conditions in the bottom sediments of the equatorial Indian Ocean 25 p0075 A80-19048	TID-29418   25 p0142 N80-13655

SUBJECT INDEX OPTIMIZATION

OCTABLE BUBBLE Physical properties of gasoline/alcohol aut		ll Creek residual oil saturation [BETC-2180-4]	technology test 25 p0108 N80-11546
fuels	Na	turally occuring carbon dioxide United States. A geologic appra	
OFF-OR CONTROL		economic sensitivity study of dr producing carbon dioxide for use	illing and
Numerical computation of singular control p with application to optimal heating and o	coling	recovery	
•	A80-17307 Su	[FE-2025-38] rface water quality parameters f oil shale development	25 p0130 N80-12624 or monitoring
OFFSHORE ENERGY SOURCES Energy from ocean thermal gradients		[PB-297984/7]	25 p0153 N80-14470
25 p0044 The Coriolis program electric power fro		<pre>plar enhanced oil recovery: An a economic feasibility</pre>	ssessment of
moored counterrotating turbine arrays in water current	warm OILS	• •	25 p0178 N80-15641
25 p0044 Salt power - Is Neptune's ole salt a tiger		ocessing of coal, oil sand and h by electric and magnetic fields	eavy oil in situ
tank fresh/salt water osmotic pressur difference for electrical generation	:e	ysical modelling of the electrom	25 p0019 A80-12310 agnetic heating
25 p0045 Power from ocean waves		of oil sand and other earth-type materials	and biological
25 p0045	A80-16655		25 p0020 A80-12311
Fuels from marine biomass 25 p0045		ATING TEMPERATURE plar-powered liquid-metal MHD pow	
Chemosynthetic production of biomass - An :	idea	[ASME PAPER 79-WA/SOL-22] ATIONS BESEARCE	25 p0065 A80-18554
	A80-16657 A	mathematical model for a future	hydrogen power
Heat flow and heat transfer conditions in bottom sediments of the equatorial India.		system	25 p0001 A80-10223
	A80-19048 OPTIC	CAL MEASURING INSTRUMENTS n in-situ optical particle sizing	technique
oil, gas and mining industries		for fuel droplets	
[NASA-CR-162423] 25 p0108 Climatic variability, marine resources and		[AIAA PAPER 80-0020] CAL PROPERTIES	25 p0062 A80-18240
offshore development		ptical and electrical investigati indium oxide selective coatings	
rederal leasing and outer continental shelf	_	spray pyrolysis	
production goals [DOE/RA-0037] 25 p0178	N80-15640 An	nalysis of the optical characteri	25 p0023 A80-12747 stics of silicor
OPPSHORE PLATFORMS Preliminary assessment of industrial needs	for an	photoelectric converters with bi sensitivity	ilateral
advanced ocean technology			25 p0044 A80-16628
Ocean Thermal Energy Conversion (OTEC) pla	tform	alculation of the optical charact high-power two-mirror solar furr	aces
configuration and integration, executive [DOE/ET-4064-1] 25 p0128	summary N80-12600 Co	omparative study of solar optics	25 p0044 A80-16629 for paraboloidal
OTEC platform configuration and integratio Volume 1: Systems engineering and integ	ū.	concentrators [ASME PAPER 79-WA/SOL-8]	25 p0066 A80-18564
[TID-29418] 25 p0142	N80-13655 OPTIC	CAL RADAR	
OTEC platform configuration and integration appendixes to volume 2	a, ne	emote sensing of LNG spill vapor Raman LIDAR	_
[DOE/ET-4065/1-VOL-2-APP] 25 p0147 OTEC platform configuration and integation		[UCRL-13984] CAL WAVEGUIDES	25 p0103 N80-10689
3: Project plan		evelopment of optical waveguides power-related application of	
OIHO	100 13714	transmission	
Construction and initial operation of the Miamisburg salt-gradient solar pond	OPTI	MAL CONTROL	25 p0036 A80-14596
	N80-14541 OF	ptimal oil yield from in situ oil	l shale retorting 25 p0038 A80-14795
Borehole geological assessment		umerical computation of singular	control problems
Overview of in situ oil shale technology a		with application to optimal heat by solar energy	
recent advances in true in situ retort m rsand-78-2367Cl 25 p0122		ptimization of a solar heating sy	25 p0051 A80-17307 ystem with
Critique of the meteorological and air qua baseline monitoring program for the prot	lity	integral compensation	25 p0089 A80-20894
oil shale leaseholds. Part A: Comments		inimum cost transmitter-receiver	antenna pairs
approach taken and recommendations for continuing program. Part B: Comments o	n the	antenna design for the sate station using optimal control t	heory
data acquisition and management		[RM-690] ptimal control of distributed par	25 p0094 N80-10414 rameter systems
OIL FIELDS	•	for solar thermal applications	
Properties of gases and petroleum liquids from terrestrial kerogen at various matu		ptimal control studies of a solar	
levels 25 p0073	A80-18832 Er	[LA-UR-78-2556] nergy savings for a solar heated	
OPL RECOVERY Optimal oil yield from in situ oil shale r	etorting	building through adaptive optimate [LA-UR-78-2986]	al control 25 p0115 N80-11610
25 p0038	A80-14795 OPTI	MIZATION he optimal design of solar cell	-
Solar enhanced oil recovery - An assessmen economic feasibility			25 p0005 A80-1133
25 p0078 Tertiary oil recovery processes research a		ptimization of iron-air and nick traction batteries	
University of Texas		ptimal insulation of solar heati	25 p0011 A80-11841 ng system pipes
Oil recovery by carbon dioxide injection -		and tanks	25 p0021 \$80-1243
Virginia [ORC-5301-34] 25 p0108	N80-11545		25 poozi 800-1243

ORBITAL SPACE STATIONS SUBJECT INDEX

Optimization of multi-layer from	t-contact grid	OXIDE FILMS	
patterns for solar cells		Role of oxide layer in Schottky barrier solar cell	ls
An optimization model for overal planning	25 p0028 A80-12816 l urban energy	25 p0025 A80-127 Effect of thin oxide layer on the current voltage relations of Schottky barrier solar cells	761
A design method for optimizing c	25 p0038 A80-14844	25 p0026 A80-127	772
for small solar center receive: [ASME PAPER 79-WA/SOL-14]	cs 25 p0068 A80-18580	OXIDES Optical and electrical investigations on annealed indium oxide selective coatings produced by	
The influence of thermophysical design and sizing of geotherma	properties on the l power plant	spray pyrolysis 25 p0023 A80-127	7117
COMPONENTS [ASME PAPER 79-WA/HT-18]	25 p0070 A80-18593	OXYGEN	
Weight optimization of ultra lar [SAWE PAPER 1301] Fuel minimal take-off path of je	ge space structures 25 p0086 A80-20641	The calculation of carbon load and axial profiles of oxygen concentration in the bed of a fluidized combustor	
aircraft, log no. C3558	•	25 p0077 A80-194 Hydrogen and oxygen from water. II - Some	121
Design optimization of aquifer recompressed air storage systems	25 p0105 N80-11066 eservoir-based	considerations in the reduction of the idea to practice	
[CONF-781046-5]	25 p0116 N80-11628	25 p0078 A80-194 Spatial and depth distribution of deuterium,	1/3
Process optimization of industria [BNL-26482] ORBITAL SPACE STATIONS	25 p0141 N80-13650	oxygen, and limiter materials on the liner of TFB 400	
Cost effectiveness requirements i	for space power	25 p0082 A80-196 Results of duct area ratio changes in the NASA	82
stations	25 p0073 A80-18800	Lewis H2-02 combustion MHD experiment	
ORGANIC COMPOUNDS  Energy storage in organic photois	_	CXYHALIDES	188
	25 p0072 A80-18747	Projected mechanism for thionyl chloride and sulphuryl chloride cathode reactions	
Energy storing organic photoreact [AD-A074915]	25 p0156 N80-14503	OZONOMETRY 25 p0012 A80-118	356
ORGANIC LITHIUM COMPOUNDS Lead oxides-lithium cells		Unleaded gasoline shortages and fuel switching -	
ORGANIC MATERIALS	25 p0012 A80-11859	The potential impact in Southern California 25 p0004 A80-110	19
Status of the PEATGAS process		P	
[CONF-781045-3] ORGANIC SULPUR COMPOUNDS	25 p0120 N80-12199	P-N JUNCTIONS	
Study of photochemical processes ferrous-thionine system pho		The semiconductor-insulator-semiconductor /indium	
in dye redox systems for chemic conversion	cal energy	tin oxide on silicon/ solar cell - Characteristics and loss mechanisms	
			68
ORGANIC WASTES (FURL CONVERSION) Fluid hed combustion in processing	25 p0027 A80-12783	25 p0006 A80-113 Effect cf concentrated sunlight on the various parameters of the p-n junction solar cell	
ORGANIC WASTES (PURL CONVERSION) Fluid bed combustion in processing protection and energy supply	g, environmental	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell 25 p0025 A80-127 Efficient shallow-homojunction GaAs solar cells by	6.0
Fluid bed combustion in processing protection and energy supply Gasification of solid waste in a	g, environmental 25 p0072 A80-18735	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell 25 p0025 A80-127 Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy 25 p0035 A80-139	64
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand	25 p0072 A80-18735 fluidized bed	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell 25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy 25 p0035 A80-139.  High-voltage multijunction solar cell	86
Fluid bed combustion in processing protection and energy supply Gasification of solid waste in a	ng, environmental 25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 une from household gestion	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination	86
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand  The microbial production of metha	25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 the from household gestion 25 p0074 A80-18870 curce. Citations	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral	86
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand  The microbial production of methat wastes - Fixed-bed anaerobic ditaction as an energy sofrom the International Aerospace Base [NTIS/PS-79/0765/2]	25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 the from household gestion 25 p0074 A80-18870 three. Citations the Abstracts Data	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.	86 93 27
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand  The microbial production of methat wastes - Fixed-bed anaerobic did waste utilization as an energy sofrom the International Aerospace Base [NTIS/PS-79/0765/2] Pilot plant gasification test on [PB-299077/8]  OSMOSIS	25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 me from household gestion 25 p0074 A80-18870 purce. Citations the Abstracts Data 25 p0102 N80-10667 biomass fuels 25 p0151 N80-14272	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.  Temperature dependence of open-circuit photovoltage of a back-surface field	86 93 27
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand  The microbial production of methal wastes - Fixed-bed anaerobic did waste utilization as an energy sofrom the International Aerospace Base [NTIS/PS-79/0765/2] Pilot plant gasification test on [PB-299077/8]  OSMOSIS Salt power - Is Neptune's ole sal	25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 ne from household gestion 25 p0074 A80-18870 porce. Citations be Abstracts Data 25 p0102 M80-10667 biomass fuels 25 p0151 N80-14272	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.  Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction	86 93 27
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand  The microbial production of methat wastes - Fixed-bed anaerobic did waste utilization as an energy sofrom the International Aerospace Base [NTIS/PS-79/0765/2] Pilot plant gasification test on [PB-299077/8]  OSMOSIS	25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 me from household gestion 25 p0074 A80-18870 purce. Citations e Abstracts Data 25 p0102 N80-10667 biomass fuels 25 p0151 N80-14272 t a tiger in the ic pressure ation	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.  Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction  25 p0087 A80-207.  P-N-P JUNCTIONS  Broadband varizone Ga/1-x/Al/x/As-si-photoelectric	86 93 27 28
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand  The microbial production of methat wastes - Fixed-bed anaerobic distributed by the state of the International Aerospace Base [NTIS/PS-79/0765/2]  Pilot plant gasification test on [PB-299077/8]  OSMOSIS  Salt power - Is Neptune's ole salt tank fresh/salt water osmot difference for electrical gener Osmotically pumped energy transpo	25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 ane from household gestion 25 p0074 A80-18870 aurce. Citations are Abstracts Data 25 p0102 M80-10667 biomass fuels 25 p0151 N80-14272 t a tiger in the ic pressure ation 25 p0045 A80-16654 rt system	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.  Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction  25 p0087 A80-207.  P-N-P JUNCTIONS  Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region  25 p0044 A80-166.	86 93 27 28
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand  The microbial production of methal wastes - Fixed-bed anaerobic did waste utilization as an energy sofrom the International Aerospace [NTIS/PS-79/0765/2]  Pilot plant gasification test on [PB-299077/8]  OSMOSIS  Salt power - Is Neptune's ole saltank fresh/salt water osmot difference for electrical gener Osmotically pumped energy transporation [AIAA PAPER 80-0210]  OUTER SPACE TREATY	25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 me from household gestion 25 p0074 A80-18870 curce. Citations be Abstracts Data 25 p0102 N80-10667 biomass fuels 25 p0151 N80-14272 that iger in the ic pressure ation 25 p0045 A80-16654 rt system 25 p0064 A80-18378	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.  Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction  P-N-P JUNCTIONS  Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region  PACIFIC OCEAN	86 93 27 28
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand  The microbial production of methat wastes - Fixed-bed anaerobic di  Waste utilization as an energy sof from the International Aerospace Base [NTIS/PS-79/0765/2] Pilot plant gasification test on [PB-299077/8]  OSMOSIS  Salt power - Is Neptune's ole salt tank fresh/salt water osmot difference for electrical gener Osmotically pumped energy transpotation of Salt PAPER 80-0210]  OUTER SPACE TREATY  Legal and political problems of s	25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 me from household gestion 25 p0074 A80-18870 curce. Citations be Abstracts Data 25 p0102 N80-10667 biomass fuels 25 p0151 N80-14272 that iger in the ic pressure ation 25 p0045 A80-16654 rt system 25 p0064 A80-18378	Parameters of the p-n junction solar cell  25 p0025 A80-127  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139  High-voltage multijunction solar cell  25 p0035 A80-145  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166  Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction  25 p0087 A80-207  P-N-P JOHCTIONS  Broadband varizone Ga/1-x/Al/x/As-si-photoelectric converters with an illuminated n-region  25 p0044 A80-1666  PACIFIC OCEAN  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W	86 93 27 28 27
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand  The microbial production of methal wastes - Fixed-bed anaerobic did waste utilization as an energy sofrom the International Aerospace [NTIS/PS-79/0765/2]  Pilot plant gasification test on [PB-299077/8]  OSMOSIS  Salt power - Is Neptune's ole saltank fresh/salt water osmot difference for electrical gener Osmotically pumped energy transporation [AIAA PAPER 80-0210]  OUTER SPACE TREATY	25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 me from household gestion 25 p0074 A80-18870 curce. Citations be Abstracts Data 25 p0102 N80-10667 biomass fuels 25 p0151 N80-14272 that iger in the ic pressure ation 25 p0045 A80-16654 rt system 25 p0064 A80-18378	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.  Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction  P-N-P JUNCTIONS  Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region  25 p0044 A80-166.  PACIFIC OCEAN  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W  [HCP/T2898-01/3]  PACKING DERSITY	86 93 27 28 27
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand.  The microbial production of methat wastes - Fired-bed anaerobic distributed waste utilization as an energy sofrom the International Aerospace Base [NTIS/PS-79/0765/2] Pilot plant gasification test on [PB-299077/8]  OSMOSIS Salt power - Is Neptune's ole salt tank fresh/salt water osmot difference for electrical gener Osmotically pumped energy transpot [AIAA PAPER 80-0210]  OUTER SPACE TREATY  Legal and political problems of sations in space [IAF PAPEE 79-IISL-03]  OUTPUT  Supply and demand in input-output	25 p0072 A80-18735 fluidized bed  25 p0074 A80-18868 ine from household gestion 25 p0074 A80-18870 curce. Citations et Abstracts Data  25 p0102 N80-10667 biomass fuels 25 p0151 N80-14272 t a tiger in the ic pressure ation 25 p0045 A80-16654 rt system 25 p0064 A80-18378 olar power  25 p0047 A80-17064	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.  Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction  25 p0087 A80-207.  P-N-P JUNCTIONS  Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region  PACIFIC OCEAN  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W  [HCP/T2898-01/3]  PACKING DENSITY  Cost analysis of packed beds for thermal energy storage	26 27 28 27 26
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand.  The microbial production of methat wastes - Fixed-bed anaerobic distribution waste utilization as an energy sof from the International Aerospace Base [NTIS/PS-79/0765/2]  Pilot plant gasification test on [PB-299077/8]  OSMOSIS  Salt power - Is Neptune's ole salt tank fresh/salt water osmot difference for electrical gener Osmotically pumped energy transpot [AIAA PAPER 80-0210]  OUTER SPACE TREATY  Legal and political problems of stations in space [IAF PAPER 79-IISL-03]  OUTPUT  Supply and demand in input-output energy modeling	25 p0072 A80-18735 fluidized bed  25 p0074 A80-18868 ine from household gestion 25 p0074 A80-18870 curce. Citations et Abstracts Data  25 p0102 N80-10667 biomass fuels 25 p0151 N80-14272 t a tiger in the ic pressure ation 25 p0045 A80-16654 rt system 25 p0064 A80-18378 olar power  25 p0047 A80-17064	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.  Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction  25 p0087 A80-207.  P-N-P JUNCTIONS  Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region  25 p0044 A80-166.  PACIFIC OCEAN  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W  [HCP/T2898-01/3]  PACKING DEBSITY  Cost analysis of packed beds for thermal energy storage  [CAES-11]  PALEONIOLOGY	26 27 28 27 26
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand.  The microbial production of methat wastes - Fixed-bed anaerobic did waste utilization as an energy sofrom the International Aerospace Base [NTIS/PS-79/0765/2]  Pilot plant gasification test on [PB-299077/8]  OSMOSIS  Salt power - Is Neptune's ole saltank fresh/salt water osmott difference for electrical gener Osmotically pumped energy transpot [AIAA PAPER 80-0210]  OUTER SPACE TREATY  Legal and political problems of stations in space [IAF PAPEE 79-IISL-03]  OUTPOT  Supply and demand in input-output energy modeling  OXALIC ACID High-efficiency alkaline accumula	25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 me from household gestion 25 p0074 A80-18870 purce. Citations be Abstracts Data 25 p0102 N80-10667 biomass fuels 25 p0151 N80-14272 t a tiger in the ic pressure atton 25 p0045 A80-16654 rt system 25 p0045 A80-18378 olar power 25 p0047 A80-17064 analysis for 25 p0088 A80-20890	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.  Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction  25 p0087 A80-207.  P-N-P JUNCTIONS  Broadband varizone Ga/1-x/Al/x/As-si-photoelectric converters with an illuminated n-region  25 p0044 A80-166.  PACIFIC OCEAN  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W  [HCP/T2898-01/3]  PACKING DEBSITY  Cost analysis of packed beds for thermal energy storage  [CAES-11]  PALEONIOLOGY  Devonian paleocurrents of the Applachian basin gas production	26 27 28 27 26
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand.  The microbial production of methat wastes - Fired-bed anaerobic distributed waste utilization as an energy so from the International Aerospace Base [NTIS/PS-79/0765/2]  Pilot plant gasification test on [PB-299077/8]  OSMOSIS  Salt power - Is Neptune's ole salt tank fresh/salt water osmot difference for electrical gener Osmotically pumped energy transpot [AIAA PAPER 80-0210]  OUTER SPACE TREATY  Legal and political problems of sations in space [IAF PAPEE 79-IISL-03]  OUTPUT  Supply and demand in input-output energy modeling  OXALIC ACID High-efficiency alkaline accumula mass treated with oxalic acid	25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 me from household gestion 25 p0074 A80-18870 purce. Citations be Abstracts Data 25 p0102 N80-10667 biomass fuels 25 p0151 N80-14272 t a tiger in the ic pressure atton 25 p0045 A80-16654 rt system 25 p0045 A80-18378 olar power 25 p0047 A80-17064 analysis for 25 p0088 A80-20890	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.  Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction  25 p0087 A80-207.  P-N-P JUNCTIONS  Broadband varizone Ga/1-x/Al/x/As-si-photoelectric converters with an illuminated n-region  25 p0044 A80-166.  PACIFIC OCEAN  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W  [HCP/T2898-01/3]  PACKING DENSITY  Cost analysis of packed beds for thermal energy storage  [CAES-11]  PALEONTOLOGY  Devonian paleocurrents of the Applachian basin	86 93 27 28 27 26 56
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand.  The microbial production of methat wastes - Fixed-bed anaerobic diterior waste utilization as an energy soften the International Aerospace Base [NTIS/PS-79/0765/2] Pilot plant gasification test on [PB-299077/8]  OSMOSIS  Salt power - Is Neptune's ole saltank fresh/salt water osmot difference for electrical gener Osmotically pumped energy transpotations of Saltan PAPER 80-0210]  OUTHER SPACE TREATY  Legal and political problems of satations in space [IAF PAPER 79-IISL-03]  OUTPUT  Supply and demand in input-output energy modeling  OXALIC ACID  High-efficiency alkaline accumula mass treated with oxalic acid	25 p0072 A80-18735 fluidized bed 25 p0074 A80-18868 ane from household gestion 25 p0074 A80-18870 curce. Citations are Abstracts Data 25 p0102 N80-10667 biomass fuels 25 p0151 N80-14272 t a tiger in the ic pressure ation 25 p0045 A80-16654 rt system 25 p0046 A80-18378 olar power 25 p0047 A80-17064 analysis for 25 p0088 A80-20890 tor with cadmium 25 p0010 A80-11842	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.  Temperature dependence of open-circuit photovoltage of a back-surface field seniconductor junction  25 p0087 A80-207.  P-N-P JUNCTIONS  Broadband varizone Ga/1-x/A1/x/As-si-photoelectric converters with an illuminated n-region  25 p0044 A80-166.  PACIFIC OCEAN  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W  [HCP/T2898-01/3]  PACKING DEBSITY  Cost analysis of packed beds for thermal energy storage  [CAES-11]  PALEONIOLOGY  Devonian paleocurrents of the Applachian basin gas production [METC/CR-79/22]  PARABOLIC BODDIES  Comparative study of solar optics for paraboloidal	27 28 27 26 56 87
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand.  The microbial production of methat wastes - Fired-bed anaerobic distributed waste utilization as an energy so from the International Aerospace Base [NTIS/PS-79/0765/2]  Pilot plant gasification test on [PB-299077/8]  OSMOSIS  Salt power - Is Neptune's ole salt tank fresh/salt water osmot difference for electrical gener Osmotically pumped energy transpot [AIAA PAPER 80-0210]  OUTER SPACE TREATY  Legal and political problems of sations in space [IAF PAPEE 79-IISL-03]  OUTPUT  Supply and demand in input-output energy modeling  OXALIC ACID High-efficiency alkaline accumula mass treated with oxalic acid	25 p0072 A80-18735 fluidized bed  25 p0074 A80-18868 me from household gestion 25 p0074 A80-18870 vorce. Citations te Abstracts Data  25 p0102 N80-10667 biomass fuels 25 p0151 N80-14272 t a tiger in the ic pressure ation 25 p0045 A80-16654 rt system 25 p0064 A80-18378 olar power  25 p0088 A80-20890 tor with cadmium 25 p0010 A80-11842 issions resulting of brown coal	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-1276  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-1398  High-voltage multijunction solar cell  25 p0035 A80-1458  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-1666  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-1666  Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction  25 p0087 A80-2076  P-N-P JUNCTIONS  Broadband varizone Ga/1-x/Al/x/As-si-photoelectric converters with an illuminated n-region  25 p0044 A80-1666  PACIFIC OCEAN  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W  [HCP/T2898-01/3] 25 p0142 N80-1369  PACKING DENSITY  Cost analysis of packed beds for thermal energy storage  [CAES-11] 25 p0145 N80-1369  PALEONTOLOGY  Devonian paleocurrents of the Applachian basin gas production  [METC/CR-79/22] 25 p0149 N80-1373  PARABOLIC BODIES  Comparative study of solar optics for paraboloidal concentrators  [ASME PAPER 79-WA/SOL-8] 25 p0066 A80-1856	64 86 93 27 28 27 26 56 87
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand  The microbial production of methat wastes - Fixed-bed anaerobic didentification as an energy sof from the International Aerospace Base [NTIS/PS-79/0765/2]  Pilot plant gasification test on [PB-299077/8]  OSMOSIS  Salt power - Is Neptune's ole salt tank fresh/salt water osmot difference for electrical gener (AIAA PAPER 80-0210)  OUTER SPACE TREATY  Legal and political problems of stations in space [IAF PAPEE 79-IISL-03]  OUTPUT  Supply and demand in input-output energy modeling  OXALIC ACID High-efficiency alkaline accumula mass treated with oxalic acid  OXIDATION  Analysis of tarry fractions in em	25 p0072 A80-18735 fluidized bed  25 p0074 A80-18868 me from household gestion 25 p0074 A80-18870 vurce. Citations re Abstracts Data  25 p0102 N80-10667 biomass fuels 25 p0151 N80-14272 t a tiger in the ic pressure ation 25 p0045 A80-16654 rt system 25 p0064 A80-18378 olar power  25 p0088 A80-20890 tor with cadmium 25 p0010 A80-11842 issions resulting of brown coal 25 p0007 A80-11448 ass - An idea covery	Effect of concentrated sunlight on the various parameters of the p-n junction solar cell  25 p0025 A80-127.  Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy  25 p0035 A80-139.  High-voltage multijunction solar cell  25 p0035 A80-145.  Photoelectric parameters of photoelectric converters in relation to illumination  25 p0044 A80-166.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity  25 p0044 A80-166.  Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction  P-N-P JUNCTIONS  Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region  PACIFIC OCEAN  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W  [HCP/T2898-01/3]  PACKING DEBSITY  Cost analysis of packed beds for thermal energy storage  [CAES-11]  PALEONTOLOGY  Devonian paleocurrents of the Applachian basin gas production  [METC/CR-79/22]  PARABOLIC BODIES  Comparative study of solar optics for paraboloidal concentrators  [ASME PAPER 79-WA/SOL-8]  PARABOLIC BEPLECTORS  Using a fin with a parabolic concentrator	27 28 27 26 56 87 35
Fluid bed combustion in processing protection and energy supply  Gasification of solid waste in a reactor with circulating sand  The microbial production of methal wastes - Fixed-bed anaerobic divided by the microbial production of methal wastes - Fixed-bed anaerobic divided by the microbial production as an energy sole from the International Aerospace Base  [NTIS/PS-79/0765/2]  Pilot plant gasification test on [PB-299077/8]  OSMOSIS  Salt power - Is Neptune's ole salt tank fresh/salt water osmot difference for electrical gener  Osmotically pumped energy transpolations and paper RBACP TREATY  Legal and political problems of stations in space  [IAF PAPER 79-IISL-03]  OUTPUT  Supply and demand in input-output energy modeling  OIALIC ACID  High-efficiency alkaline accumula mass treated with oxalic acid  OXIDATION  Analysis of tarry fractions in emfrom low temperature oxidation	25 p0072 A80-18735 fluidized bed  25 p0074 A80-18868 ane from household gestion 25 p0074 A80-18870 are Abstracts Data  25 p0102 M80-10667 biomass fuels 25 p0151 N80-14272  t a tiger in the ic pressure ation 25 p0045 A80-16654 rt system 25 p0046 A80-18378  olar power  25 p0047 A80-17064  analysis for 25 p0088 A80-20890  tor with cadmium  25 p0010 A80-11842 issions resulting of brown coal 25 p0007 A80-11448 ass - An idea	PHOP JUNCTIONS  Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region  Converters with an illuminated n-region  PACIFIC OCEAN  OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg W  [CAES-11]  PACKING DEBSITY  Comparative study of solar optics for paraboloidal concentrators  [ASME PARABOLIC REFLECTORS]  Efficient shallow-homojunction GaAs solar cells by molecular beam quantum punction solar cell  25 p0035 A80-139: 25 p00035 A80-145: 26 p00044 A80-145: 27 p0044 A80-145: 28 p0044 A80-166: 28 p0044 A80-166: 29 p0044 A80-166: 20 p0087 A80-207: 20 p0087 A80-207: 20 p0087 A80-207: 21 p0087 A80-207: 22 p0087 A80-207: 23 p0087 A80-207: 24 p0087 A80-207: 25 p0087 A80-207: 26 p0087 A80-207: 27 p0087 A80-207: 28 p0087 A80-207: 28 p0088 A80-	27 28 27 26 56 87 35

SUBJECT INDEX PREFORMANCE TESTS

Performance of solid compound parabolic	PENDULUMS Solar concentrator with polyester film for
concentrators in series 25 p0024 A80-12749	reflecting surface and pendulum arrangement for
Solar concentrator with polyester film for	tracking movement
reflecting surface and pendulum arrangement for tracking movement	PENETRONETERS 25 p0027 A80-12784
25 p0027 A80-12784	Development of in situ marine seismic and
Heat and electricity from the sun using parabolic dish collector systems	geotechnical instrumentation systems [SAND-79-0868C] 25 p0137 N80-13431
25 p0037 A80-14706	PRNBSYLVANIA
SHADE - A computer model for evaluating the optical performance of two-axis tracking	Development of mining guidance and control systems [NASA-TM-78226] 25 p0137 N80-13601
parabolic concentrators	PERFORMANCE PREDICTION
[ASME PAPER 79-WA/SOL-13] 25 p0068 A80-18581 Solar concentrators using vacuum-contoured	Derivation of method for predicting long term average energy delivery of solar collectors
surfaces for tracking	25 p0005 A80-11339
[AIAA PAPER 80-0399] 25 p0077 A80-19326 Cavity enhancement by controlled directional	Simple procedure for predicting long term average performance of nonconcentrating and of
scattering in solar collectors	concentrating solar collectors
25 p0083 A80-19955 Solar concentrator	25 p0005 A80-11340 Computer modelling of electrically parallel arrays
[NASA-CASE-MFS-23727-1] 25 p0 153 N80-14473	of sodium-sulphur cells
PARABOLOID MIRRORS Calculation of the optical characteristics of	25 p0013 A80-11865 Validation methodology for solar heating and
high-power two-mirror solar furnaces	cooling systems
PARTICLE ACCELERATION 25 p0044 A80-16629	25 p0020 A80-12431 A theoretical method for estimation of power loss
Non-stochastic heating of magnetized plasma by	due to mismatch in solar cell I-V characteristics 25 p0025 A80-12763
electrostatic wave 25 p0043 A80-16194	Correspondence between solar load ratio method for
PARTICLE ACCELERATORS	passive water wall systems and f-Chart performance estimates
Megavolt and megampere diagnostic techniques for pulsed power particle beam fusion drivers	25 p0029 A80-12821
25 p0046 A80-16745 150-kV, 80-A solid state power supply for neutral	The analysis and simulation of an open cycle absorption refrigeration system
beam injection	25 p0029 A80-12825
25 p0080 A80-19617 Pulsed power for fusion	A theoretical evaluation and optimization of the radiation resistance of gallium arsenide
[SAND-79-0933C] 25 p0181 N80-15908	solar-cell structures 25 p0046 A80-16794
PARTICLE BEAMS Particle beam systems in plasma diagnostics	Sensitivity of direct gain space heating
25 p0045 A80-16718  Megawolt and megampere diagnostic techniques for	performance to fundamental parameter variations 25 p0060 A80-18128
pulsed power particle beam fusion drivers	A performance and current distribution model for
25 p0C46 A80-16745 Pulsed power for fusion	scaled-up molten carbonate fuel cells 25 p0062 A80-18213
[SAND-79-0933C] 25 p0181 N80-15908	Off-design performance analysis of MHD generator
PARTICLE DIFFUSION Two-dimensional transient dispersion and	channels [AIAA PAPER 80-0176] 25 p0064 A80-18354
adsorption in porous media	Heat transfer analysis of receivers for a solar
[UCBL-81970] 25 p0108 N80-11386 PARTICLE PRODUCTION	concentrating collector [ASME PAPER 79-WA/SOL-20] 25 p0065 A80-18558
Optimization of neutron yield in conical system at	RAPAD - Real-time Accurate Performance Analysis of Data for performance estimation of wind
explosion-induced compression 25 p0007 A80-11545	energy conversion system
PARTICLE SIZE DISTRIBUTION An in-situ optical particle sizing technique	[ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565 Design, evaluation, and testing of a moderately
for fuel droplets	concentrating, non-tracking solar energy collector
[AIAA PAPER 80-0020] 25 p0062 A80-18240	[ASME PAPER 79-WA/SOL-3] 25 p0067 A80-18570 Evaluation of a solar heating system installed in
PARTICLES A single coal particle gasification model	the LSU Field House
25 p0088 A80-20884 PARTICULATE SAMPLING	[ASME PAPER 79-WA/SOL-31] 25 p0068 A80-18576 Comparisons of measured and simulated performance
Western energy sulfate/nitrate monitoring network	for CSU Solar House I
[PB-299238/6] 25 p0 180 N80-15685 PATTERN METHOD (FORECASTING)	[ASME PAPER 79-WA/SOL-35] 25 p0070 A80-18590 Multi-pass solar heater with heat-exchanging
Energy demand in the developing countries	passes and exposed to non-uniform radiation
[DOE/EIA-0183/10] 25 p0177 N80-15631	[ASME PAPER 79-WA/HT-67] 25 p0070 A80-18600 Modeling and simulation of WECS assisted utility
The distribution of sulfur and organic matter in various fractions of peat - Origins of sulfur in	systems Wind-Electric Conversion System 25 p0088 A80-20887
coal	PERFORMANCE TESTS
25 p0074 A80-18833	Conceptual design, realization and experimentation of a concentration photovoltaic generator -
PEDALS The pedal wind turbine	SOPHOCLE 1000 prototype French thesis
25 p0008 A80-11645 PELLETS	25 p0001 A80-10109 Experimental demonstration of the
Pelletized wood /Woodex/ - Applications and	diffuser-augmented wind turbine concept
potential from biomass waste products 25 p0017 A80-11981	The pedal wind turbine 25 p0007 A80-11643
Non-linear theory of collective processes in	25 p0008 A80-11645
laser-pellet interaction and soliton generation 25 p0057 A80-17870	Development of silver-hydrogen cells 25 p0010 A80-11844
Refueling by means of pellets - Ablation rate and injection velocity considerations effects on	Optimization of iron-air and nickel oxide-iron traction batteries
plasma confinement in tokamak	25 p0011 a80-11847
25 p0080 A80-19611	Some aspects of sodium-sulphur tatteries 25 p0013 A80-11866

Performance of silicon solar cells in front of a	PETROLEUM PRODUCTS
water absorber 25 p0019 &80-12125	Properties of gases and petroleum liquids derived from terrestrial kerogen at varicus maturation
On the performance of air-based solar heating systems utilizing phase-change energy storage	levels 25 p0073 A80-18832
25 p0020 A80-12427  Instrumentation principles for performance  measurement of solar heating systems	Petrochenicals: Their economic significance in the domestic economy [PB-299733/6] 25 p0181 N80-15992
25 p002C A80-12432	PHASE TRANSFORMATIONS
Monitoring of the solar-heated modular homes at Los Alamos	On the performance of air-based solar heating systems utilizing phase-change energy storage
25 p0022 A80-12607 An investigation of experimental performance of a compound parabolic concentrator	25 p0020 A80-12427 Modeling of a thermal wall panel using phase change materials
25 p0023 A80-12748 A seasonally adjusted concentrating collector made of mirror strips	25 p0021 A80-12439 Design criteria in PCM wall thermal storage Phase Change Materials
25 p0024 A80-12750 Prime mover for solar power plant	25 p0021 A80-12440 Storage of solar heat by solid-liquid phase change
25 p0024 A80-12752 Electrochemical storage of photovoltaic solar energy	25 p0024 A80-12755 An incongruent heat-of-fusion system - CaCl2-6H20
25 p0025 A80-12757 Testing of three installed solar domestic water heaters	<ul> <li>made congruent through modification of the chemical composition of the system during melting</li> </ul>
25 p0025 A80-12758 Development of space quality silicon solar cells	25 p0029 A80-12823 Effectiveness - NTU charts for latent heat storage
at B.A.R.C. 25 p0025 A80-12762	units heat exchangers [ASME PAPER 79-WA/SOL-16] 25 p0066 A80-18561
Performance studies on uniform illumination type nontracking concentrators	Melting in phase-change thermal storage media [COO-2993-1] 25 p0173 N80-15584
25 p0026 A80-12766 Experimental investigation of various barrier	PHILOSOPHY Soft and hard energy paths - The roads not taken
metals for Schottky barrier and MOS solar cells 25 p0C27 A80-12776	political, technical and philosophical aspects of energy problem
Experimental investigations of an intermittent ammonia-water solar refrigerator	PHOSPHOBIC ACID 25 p0007 A80-11400
25 p0028 A80-12786 Performance characteristics of solar regenerators	Phosphoric acid fuel-cell electrocatalysts from
25 p0028 A80-12787 Solar cell spectral response characterization	pyropolymer ceramic composites 25 p0012 A80-11861
25 p0037 A80-14685	Technology development for phosphoric acid fuel cell powerplant, phase 2
Performance testing of a hydrogen heat pire [AIAA PAPER 80-0212] 25 p0064 A80-18379	[NASA-CR-159705] 25 p0096 N80-10603 Integral cell scale-up and performance verification
Horizontal-axis wind generator performance with varying tip speed ratio and rotor orientation	[EPBI-EM-1134] 25 p0141 N80-13646 PHOSPHORUS
[ASME PAPER 79-WA/SOL-2] 25 p0067 A80-18571 A comparison of test results for flat-plate water-heating solar collectors using the BSE and	Utilization of transition metal phosphorus trisulphides as battery cathodes 25 p0012 A80-11858
ASHRAE procedures [ASME PAPER 79-WA/SOL-4] 25 p0069 A80-18585	PHOTOABSORPTION Laser fusion implications of resonance absorption
Comparison of predicted and measured solar energy system performance	and associated electrostatic field pressure 25 p0057 A80-17869
[ASME PAPER 79-WA/SOL-39] 25 p0069 A80-18589 Testing and performance of the 30 kA ohmic heating	PHOTOCHEMICAL REACTIONS  Hydrogen evolution from water using solid carbon
system for ASDEX tokamak experiment with axisymmetric diverter	and light energy 25 p0032 A80-13109
25 p0078 A80-19585 Construction and test of a high power injector of	Photochemical hydrogen production 25 p0052 A80-17579
hydrogen cluster ions 25 p0080 A80-19618	International Conference on the Photochemical Conversion and Storage of Solar Energy, 2nd,
Behavior of SORB-AC wafer pumps in contaminated H2 plasmas and during maintenance of plasma machines 25 p0082 A80-19672	Cambridge University, Cambridge, England, August 10-12, 1978, Lectures
New concept for a system suitable for solar simulation	25 p0072 A80-18746 Energy storage in organic photoisomers
25 p0083 A80-19976 Gas generator research and development: BI-GAS process	25 p0072 A80-18747 Photosensitization mechanisms for energy storing isomerizations
[FE-1207-62] 25 p0135 N80-13288	[AD-A074968] 25 p0156 N80-14502 Energy storing organic photoreactions
Thermal performance evaluation of the Suncatcher SH-11 (liquid) solar collector	[AD-A074915] 25 p0156 N80-14503 PHOTOCONDUCTORS
[NASA-CR-161253] 25 p0156 N80-14497 Design and performance of silicon solar cells under concentrated sunlight	An electronic device for intermittent tracking of sun in solar collectors
[SAND-79-1165C] 25 p0172 N80-15577 Intermediate report on the performance of	25 p0027 A80-12782 Measurement of insolation using CdS photoresistor 25 p0047 A80-16998
plate-type ice-maker heat pumps [ORNL/CON-23] 25 p0176 N80-15619	PHOTODIODES AlGaAs tunnel diode
BBIODICALS Dimensions/NBS, volume 63, no. 6, June 1979	PHOTOBLECTRIC CELLS 25 p0046 A80-16799
[PB-297836/9] 25 p0105 N80-10975	Studies of photogalvanic cells 25 p0023 A80-12743
Anton permselective membrane [NASA-CR-159599] 25 p0122 N80-12551	Photogalvanic cells 25 p0073 A80-12743
ERSONNEL DEVELOPMENT	PHOTORLECTRIC EFFECT
Development of the Rocky Mountain Energy and Environmental Technology Center: A preliminary	Photoelectric parameters of photoelectric converters in relation to illumination
analysis [ORAU-158] 25 p0179 N80-15670	25 p0044 A80-16627

SUBJECT INDEX PHOTOVOLTAIC CELLS

Biological and biochemical hydrogen production 25 p0053 A80-17581 The water splitting light reaction of chlorophyll a dihydrate. Visible light solar energy conversion after the primary reaction in plant PHOTOELECTRIC BMISSION Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 A80-20723 PHOTOBLECTRIC MATERIALS Thionine coated electrode for photogalvanic cells 25 p0051 A80-17343 photosynthesis 25 p0133 N80-13188 PHOTOVOLTAGES PHOTOELECTROCHEMICAL DEVICES Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells 25 p0087 #80-20723 A comprehensive model for photovoltage generation at metal electrodes in contact with solutions of fluorescent dyes 25 p0004 A80-10879 Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction Study of photochemical processes in the ferrous-thionine system --- photogalvanic effect in dye redox systems for chemical energy 25 p0087 A80-20727 Classification and technical review of dc-ac inverters for use in photovoltaic power systems [C00-4094-25] 25 p0137 N80-13377 conversion 25 p0027 A80-12783 Photophysical and chemical processes affecting the stability of the thiazine dye-iron system --- in PHOTOVOLTAIC CELLS hydrogen production Conceptual design, realization and experimentation of a concentration photovoltaic generator -25 p0033 A80-13198 SOPHOCLE 1000 prototype --- French thesis
25 p0001 A80-10109 Photochemical hydrogen production 25 p0052 A80-17579 Theory of the direct coupling between D.C. motors and photovoltaic solar arrays Photoelectrochemical hydrogen production 25 p0052 A80-17580 Power conversion efficiency monitoring in photoelectrochemical and other solar cells 25 p0005 A80-11334 The optimal design of solar cell grid lines 25 p0005 A80-11335 25 p0062 A80-18214 Photoelectrochemistry and heterogeneous photocatalysis at semiconductors Concentration ratio and efficiency in thermophotovoltaics 25 p0073 A80-18750 25 p0005 A80-11336 Some promising aspects regarding solar energy conversion with metal oxide photovoltaic cells 25 p0011 A80-11853 Electrochemical storage of photovoltaic solar energy 25 p0025 A80-12757 Programme and progress of DST sponsored solar Principles of photoelectrochemical solar energy conversion 25 p0074 A80-18990 Photoelectrochemical conversion of optical energy to electricity and fuels [AD-A072861] 25 p0 123 N80-12556 photovoltaic work in India PHOTOGROLOGY Geological and geothermal data use investigations for application explorer mission-1, heat capacity mapping mission [E80-10033] 25 p0170 N80-15 25 p0025 A80-12760 Cadmium telluride solar cells 25 p0026 A80-12765 25 p0170 N80-15528 GaAs-electrolyte photovoltaic cells PHOTOGRAPHIC PROCESSING EQUIPMENT 25 p0026 A80-12774 A solar-heated water system for a photographic processing laboratory Design and development of a 100 peak watt photovoltaic concentrator system 25 p0041 A80-15750 Power loss in photovoltaic arrays due to mismatch in cell characteristics PHOTOLYSIS Hydrogen production. Citations from the nyarogen production. Citations from the international aerospace abstracts data hase [NTIS/PS-79/0773/6] 25 p0094 N80-10401 The water splitting light reaction of chlorophyll a dihydrate. Visible light solar energy conversion after the primary reaction in plant 25 p0028 A80-12815 Photoconverter with bilateral sensitivity 25 p0044 A80-16625 Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region Photoelectric parameters of photoelectric converters in relation to illumination photosynthesis 25 p0133 N80-13188 PHOTOMETERS Measurement of insolation using CdS photoresistor Analysis of the optical characteristics of silicon photoelectric converters with bilateral 25 p0047 A80-16998 PHOTONS Energy storing organic photoreactions
[AD-A074915] 25 25 p0044 A80-16628
The ampere-hour efficiency of photovoltaic solar 25 p0156 N80-14503 PHOTOPHILIC PLANTS Microbial hydrogen production from replenishable generators 25 p0047 A80-16999 resources Global aspects of sunlight as a major energy source 25 p0048 A80-17131 25 p0032 A80-13197 PHOTOSENSITI VITY Photoconverter with bilateral sensitivity Photovoltaic solar cell array used for 25 p0044 A80-16625 supplemental power generation Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region 25 p0061 A80-18129 Thermal energy utilization in the Mississippi 25 p0044 A80-16626
Photoelectric parameters of photoelectric converters in relation to illumination County Community College Photovoltaic Project
[ASME PAPER 79-WA/SOL-29] 25 p0068 A80-25 p0068 A80-18575 The satellite power system concept and program
[SAWE PAPER 1305] 25 p0086 A80-20643
Computer analysis of grids currently used for 25 p0044 A80-16627 Analysis of the optical characteristics of silicon photoelectric converters with bilateral CdS/Cu2S solar cells 25 p0089 A80-20893 sensitivity Analytical evaluation of a solar thermophotovoltaic (TPV) converter [SAND-79-0504C] 25 25 p0044 A80-16628 PHOTOSYNTHESIS The photo-electrochemical production of C-C bonds 25 p0099 N80-10638 Plywheel energy storage and conversion system for solar photovoltaic applications
[COO-4094-31] 25 p0100 B80-10 from carbon dioxide 25 p0004 A80-10848 Photochemical conversion and storage of solar energy 25 p0009 A80-11829 25 p0100 N80-10639 Night storage and backup generation with The turnover times and pool sizes of electrochemical engines --- study of electric generators for electrochemical engines using photovoltaic energy conversion photosynthetic hydrogen production by green algae 25 p0029 A80-12819 Petroleum plantations and synthetic chloroplasts [LA-UR-78-1149] 25. p0113 N80-11596

25 p0049 A80-17137

•	
Maximum power trackers for photovoltaic arrays	Design of photovoltaic systems for residential
[COO-4094-17] 25 p0116 H80-11627 A photovoltaic power system in the remote African	applications in the United States [SAND-78-2186C] 25 p0 171 N80-15566
village of Tangaye, Opper Volta	[SAND-78-2186C] 25 p0 171 N80-15566 Description of the MIT/Lincoln Laboratory
[NASA-TH-79318] 25 p0123 N80-12552	photovoltaic systems test facility
Batteries for specific solar applications [SAND-79-1428C] 25 p0124 N80-12559	[COO-4094-41] 25 p0178 N80-15638 PHYSICAL PROPERTIES
Mead, Nebraska, 25-kW photovoltaic power system	On the performance of air-based solar heating
[COO-4094-10] 25 p0127 N80-12592 Evaluation of combined photovoltaic/thermal	systems utilizing phase-change energy storage
collectors	25 p0020 A80-12427 PILOT PLANTS
[C00-4577-8] 25 p0143 N80-13665	Is there a chance for OTEC
Photovoltaic concentrator application experiment.  Phase 1: A 150 kW photovoltaic concentrator	25 p0007 A80-11394 Kentucky's coal-based chemical/energy park
power system for load-center applications with	25 p0013 A80-11954
feedback into the utility grid [DOE/CS-34267/1] 25 p0145 N80-13688	Current German developments in coal liquefaction
Photovoltaic systems. Program summary	technology 25 p0015 <b>A</b> 80-11965
[DOE/ET-0019/2] 25 p0146 N80-13691	SRC solids - Boiler fuel and building block
Test plan for the Mead 25-kW Photovoltaic Flexible Test Facility, 1979	Solvent Refined Coal
[COO-4094-53] 25 p0146 N80-13692	25 p0015 A80-11967 The near term potential for gasification-combined
Residential photovoltaic module and array	cycle electric power generation
requirements study, appendices [NASA-CR-162529] 25 p0154 N80-14481	25 p0015 A80-11970 Progress and development trends in coal
Residential photovoltaic module and array	gasification and liquefaction technologies - New
requirements study [NASA-CE-162528] 25 p0154 N80-14482	gasification methods developed on a laboratory
Photovoltaic power systems market identification	or large scale 25 p0031 A80-12946
and analysis	Harnessing power from tides - State of the art
[HCP/T4022-01] 25 p0162 N80-14559 Photovoltaic incentives options	25 p0045 A80-16658 The 10MW(e) solar thermal central receiver pilot
[HCP/CS-0023] 25 p0162 N80-14561	plant: Heliostat foundation and interface
A survey of photovoltaic systems [NASA-CR-150696] 25 p0171 N80-15563	structure investigation
Status of the US Department of Energy photovoltaic	[SAND-78-8180] 25 p0097 N80-10612 HYGAS process update
concentrator development project	[CCNF-781045-4] 25 p0120 N80-12200
[SAND-78-2187C] 25 p0172 N80-15578 Flywheel energy storage and conversion system for	Pilot plant gasification test on biomass fuels [PB-299077/8] 25 p0151 N80-14272
photovoltaic applications	The 10 MW solar thermal pilot plant dynamic
[COO-4094-48] 25 p0178 N80-15635 PHOTOVOLTRIC CONVERSION	simulation. Volume 1: Computer program description
Conceptual design, realization and experimentation	[ATR-78 (7747) -1-VOL-1] 25 p0162 N80-14550
of a concentration photovoltaic generator - SOPHOCLE 1000 prototype French thesis	The 10 MW solar thermal pilot plant dynamic
25 p0001 A80-10109	simulation. Volume 2: Computer program source
A comprehensive model for photovoltage generation	[ATR-78(7747)-2-VOL-2] 25 p0162 N80-14551
at metal electrodes in contact with solutions of fluorescent dyes	Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques
25 p0004 A80-10879	components of coal gasification and liquefaction
Solar electric generating system resource requirements	pilot plants [COMF-790480-1] 25 p0167 N80-15259
25 p0005 A80-11341	PIPE PLOW
Programme and progress of DST sponsored solar photovoltaic work in India	Peasible thermophysical conditions for gas receiver tubes in solar power stations
. 25 p0025 A80-12760	[ASME PAPER 79-WA/HT-37] 25 p0071 A80-18627
Role of oxide layer in Schottky barrier solar cells	PIPELINES
25 p0025 A80-12761 Effect of concentrated sunlight on the various	Bulletin of the Division of Mechanical Engineering and the National Meronautical Establishment
parameters of the p-n junction solar cell	design of a gas pipeline station control system
25 p0025 A80-12764 Experimental study of MOS solar cells under	and a railway switch car [AD-A074885] 25 p0182 N80-16022
concentration	PIPES (TUBES)
25 p0026 A80-12769 Copper diffusion and photovoltaic mechanisms at	Optimal insulation of pipes and tanks for solar
Cu-CdS contact	heating systems [ALC-5319-2] 25 p0102 N80-10660
25 p0033 A80-13204	Materials testing for central receiver
Photoconverter with bilateral sensitivity 25 p0044 A80-16625	solar-thermal power systems [TID-29443] 25 p0146 N80-13695
The A-I/1-y/B-I/y/C-IIID-VI/2x/E-VI2/1-x/	Long-term erosion monitoring of metallic conduits
pentenary alloy system and its application to photovoltaic solar energy conversion	by ultrasonic pulse-echo techniques components of coal gasification and liquefaction
25 p0046 A80-16786	pilot plants
Conversion of radiant energy into chemical energy [UCRL-TRANS-11427] 25 p0114 N80-11609	[CONF-790480-1] 25 p0167 N80-15259
[UCRL-TRANS-11427] 25 p0114 N80-11609 Photovoltaic energy conversion in polymer films	PISTON THEORY Investigation of the effect of piston inductance
25 p0154 N80-14477	on energetic characteristics of a piston linear
System tests and applications photovoltaic program [HCP/T4024-01/15] 25 p0163 H80-14566	generator with a ferromagnetic core
Photovoltaic power system reliability considerations	25 p0083 A80-20066 Change in rate of conducting-piston motion and the
[NASA-TH-79291] 25 p0170 N80-15422 PHOTOVOLTAIC EFFECT	characteristics of field-diffusion processes in
The physics and chemistry of solar cells	a linear electromechanical energy converter 25 p0083 A80-20069
25 p0073 A80-18751	PLASHA CONTROL
Photoelectrochemical conversion of optical energy to electricity and fuels	Tearing modes in a plasma with magnetic braiding
[AD-A072861] 25 p0 123 N80-12556	25 p0006 A80-11349 The physics of laser fusion Book
Decentralized solar photovoltaic energy systems	25 p0019 480-12049

SUBJECT INDEX PLASMA HEATING

Diagnostics for mirror machines	PLASMA CYLINDRES
25 p0045 A80-16720 Hard X-ray measurements performed on plasma confinement devices	Nonlinear modification of resonance-cone trajectories due to ponderomotive force in cylindrical plasma
25 p0045 A80-16722 Survey of mirror machine reactors	25 p0006 A80-11347 Current equilibrium and effective ion charge in
25 p0046 a80-16752 Magnetic field design for a large tokamak	L-2 stellarator plasma 25 p0055 A80-17829
Accumulation of impurities and stability behaviour in the high-density regime of Pulsator	Nuclear fusion by cylindrical ion implosion 25 p0058 A80-17874 PLASMA DEMSITY
25 p0054 A80-17759 High-beta tokamaks	Measurements of the density fluctuations using the microwave scattering method for toroidal
25 p0054 A80-17789 Dependence of ideal MHD beta limits on current	plasmas 25 p0046 A80-16731 Theory of cavitons in laser-irradiated plasmas
density and pressure profiles 25 p0054 A80-17790 MHD stability limits on high-beta tokamaks	25 p0057 A80-17872 Boundary layer analysis of cold-blanket systems
25 p0054 A80-17797 LASL toroidal reversed-field pinch programme	A multi-pulse ruby laser recording of the temporal
25 p0054 A80-17809 Principles of plasma heating and confinement in a compact toroidal configuration	evolution of plasma parameters by light scattering 25 p0084 A80-20165 PLASMA DIAGNOSTICS
25 p0055 A80-17822 End plugging of a hot linear theta pinch 25 p0055 A80-17824	Particle beam systems in plasma diagnostics 25 p0045 180-16718 Diagnostics for mirror machines
Heating, confinement and fluctuations in the CLEO stellarator	25 p0045 A80-16720 Hard X-ray measurements performed on plasma confinement devices
25 p0C55 A80-17826 Transverse particle losses in axially asymmetrical open traps	25 p0045 A80-16722 Measurements of the density fluctuations using the
25 p0055 A80-17840 Drift wave stability and transport theory in fusion systems	microwave scattering method for toroidal plasmas  25 p0046 A80-16731
25 p0056 & 80-17846  Inertial confinement fusion at NRL 25 p0056 & 80-17861	Megavolt and megampere diagnostic techniques for pulsed power particle beam fusion drivers 25 p0046 A80-16745
Work on laser interaction and implosion at Centre d'Etudes de Limeil	Survey of mirror machine reactors 25 p0046 A80-16752
25 p0057 A80-17863 Inertial confinement fusion research at Osaka	Experimental studies of interaction and transport processes in laser fusion 25 p0057 A80-17864
25 p0057 A80-17868 The United States programme in heavy ion beam fusion 25 p0058 A80-17873	MeV cluster ion beam diagnostics by means of calorimetry and time-of-flight spectroscopy
Nuclear fusion by cylindrical ion implosicm 25 p0058 A80-17874	25 p0080 A80-19612 A multi-pulse ruby laser recording of the temporal
Calculations of inertial confinement fusion gains using a collective model for reheat, bremsstrahlung and fuel depletion for highly	evolution of plasma parameters by light scattering 25 p0084 A80-20165 PLASMA ELECTRODES
efficient electrodynamic laser compressions 25 p0058 A80-17875	Determination of the geometry of the transition region of a series MHD generator 25 p0030 A80-12900
Low-aspect-ratio limit of the toroidal reactor - The spheromak 25 p0C58 &80-17876	Characteristics of series channels with a diminishing electrode-commutation angle in the
Boundary layer analysis of cold-blanket systems 25 p0058 A80-17877	transition section MBD generators 25 p0061 A80-18139
Pusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volumes 1 & 2	Power take-off analysis for diagonally connected MHD channels [AIAA PAPEE 80-0253] 25 p0077 A80-19309
25 p0078 A80-19581 A new high beta reversed field pinch machine	PLASMA EQUILIBRIUM Magnetic field design for a large tokamak
Numerical computations in the design of compact ignition experiments of D-T toroidal plasma	25 p0046 A80-16760 High-beta tokamaks 25 p0054 A80-17789
heating 25 p0078 A80-19589	Dependence of ideal MHD beta limits on current density and pressure profiles
Poloidal magnetic field design of a pulsed tokamak reactor	25 p0054 A80-17790 LASL toroidal reversed-field pinch programme 25 p0054 A80-17809
25 p0078 A80-19592 Influence of the scaling of plasma confinement on the economy and unit size of ignited toroidal reactors	Current equilibrium and effective ion charge in L-2 stellarator plasma 25 p0055 A80-17829
25 p0079 A80-19594 The effect of classical and anomalous transport on the performance of Tandem Mirror reactors	Poloidal magnetic field design of a pulsed tokamak reactor 25 p0078 A80-19592
25 p0079 A80-19596 Refueling by means of pellets - Ablation rate and injection velocity considerations effects on	New approach for Vlasov equilibrium of a relativistic electron beam in a plasma medium 25 p0085 A80-20538
plasma confinement in tokamak 25 p0080 A80-19611	PLASMA GENERATORS  Kinetics of the processes in a plasma produced by
The application of computers to fusion experimental facilities	an electron beam in a dense inert gas 25 p0007 A80-11612 PLASHA HRATING
25 p008C A80-19619 Behavior of SORB-AC wafer pumps in contaminated H2 plasmas and during maintenance of plasma machines	Nonlinear modification of resonance-cone trajectories due to ponderomotive force in
25 p0082 A80-19672 Effect of finite beta on drift-wave turbulence and particle confinement of toroidal plasma 25 p0084 A80-20158	cylindrical plasma 25 p0006 A80-11347

PLASEA INTERACTIONS SUBJECT INDEX

Non-stochastic heating of magnetized plasma by Plasma physics and controlled nuclear fusion research 1978; Proceedings of the Seventh International Conference, Innsbruck, Austria, August 23-30, 1978. Volumes 1, 2 & 3 electrostatic wave 25 p0043 A80-16194 Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct 25 p0053 A80-17751 converters Coal-fired open cycle MHD combustion plasmas -Chemical equilibrium and transport properties 25 p0043 A80-16262 Dynamic suppression of ionization instability --in MHD devices of Paraday and Hall types
25 p0043 A80-16484 workshor results [ AIAA PAPER 80-0091] 25 p0063 A80-18265 Relativistic high-current microwave plasma Diagnostics for mirror machines electronics 25 p0045 A80-16720 25 p0083 A80-19847 Studies on plasma formation, relaxation and PLASEA PIECE ISBA FIMES LASL toroidal reversed-field pinch programme 25 p0054 A80~17809 heating in a reversed-field pinch 25 p0054 A80-17811 Principles of plasma heating and confinement in a Studies on plasma formation, relaxation and heating in a reversed-field pinch compact toroidal configuration 25 p0055 A80-17822
End plugging of a hot linear theta pinch
25 p0055 A80-17824
Recent developments in linear theta-pinch and
laser-heated solenoid research 25 p0054 A80-17811 The effect of current shear on the tearing instability A new high beta reversed field pinch machine 25 p0078 A80-19587 25 p0059 A80-18086 25 p0055 A80-17825 Heating, confinement and fluctuations in the CLEO Neutronics in the toroidal belt-geometry of a stellarator screw pinch reactor 25 p0081 A80-19657
The design of a thin walled toroidal vacuum
chamber for a large RFP experiment --- Reversed
Field Finch 25 p0055 A80-17826 Fast-magnetosonic-wave excitation in large-tokamak plasmas 25 p0056 A80-17855 Investigation of plasma heating by powerful relativistic electron beams 25 p0082 A80-19676 PLASMA. POTENTIALS 25 p0056 A80-17857 Particle beam systems in plasma diagnostics Testing and performance of the 30 kA ohmic heating system for ASDEX --- tokamak experiment with axisymmetric diverter 25 p0045 A80-16718 PLASMA RESONANCE Nonlinear modification of resonance-cone 25 p0078 A80-19585 trajectories --- due to ponderomotive force in Numerical computations in the design of compact ignition experiments --- of D-T toroidal plasma cylindrical plasma 25 p0006 A80-11347 Laser fusion implications of resonance absorption 25 p0078 A80-19589 and associated electrostatic field pressure Design of antennae for R.F. power coupling to tokamak plasma in the ion ciclotron range of 25 p0057 A80-17869 Wave absorption and superreflectivity of laser plasmas due to electromagnetic structure 25 p0079 A80-19608 resonances Electrical power system to TFTE poloidal coils 25 p0057 A80-17871 25 p0080 A80-19620 Possible improvements to a basic cellular thin PLASMA TEMPERATURE ISBA TERPERATURE
A multi-pulse ruby laser recording of the temporal
evolution of plasma parameters by light scattering
25 p0084 A80-20165 blanket fusion reactor configuration Two-dimensional heating analysis of fusion blankets for synfuel production PLASMA TURBULENCE Effect of finite beta on drift-wave turbulence and particle confinement --- of toroidal plasma
25 p0084 A80-20158 25 p0082 A80-19665 Main power supplies for large toroidal fusion experiments PLASMA WAVES
Drift wave stability and transport theory in fusion systems 25 p0082 A80-19670 Status of the JET project --- Joint European Torus Steady-state currents driven by collisionally damped lower-hybrid waves --- in plasma 25 p0084 &80-20157 25 p0082 A80-19708 Steady-state currents driven by collisionally damped lower-hybrid waves --- in plasma 25 p0084 A80-20157 Study of current-driven magnetohydrodynamic PLASMA-BLECTROMAGNETIC INTERACTION instability in the Heliotron-D device Wave absorption and superreflectivity of laser 25 p0084 A80-20159 plasmas due to electromagnetic structure PLASSA INTERACTIONS resonances Ablation of solid hydrogen in a plasma High interaction subsonic MHD channel operation [AIAA PAPER 80-0022] 25 p0062 ARN-19202 ISBA JETS 25 p0057 A80-17871 PLASMA-PARTICLE INTERACTIONS
Inertial confinement fusion research at Osaka 25 p0057 A80-17868 New approach for Vlasov equilibrium of a PLASMA JETS A simple model describing hydrogen re-cycling in fusion experiments and its influence on relativistic electron beam in a plasma medium 25 p0085 A80-20538 PLASHAS (PHYSICS)
Coal sulfur measurements
[FB-299575/1] 25 p0
PULSAR: An inductive pulse power source discharge behaviour 25 p0022 A80-12453 PLASEA LAYERS 25 p0169 N80-15294 What is the mechanism responsible for the precursors of internal disruptions --- as [SAND-79-1246C] 25 p0177 N80-15627 observed in Tokamak plasma PLASTIC TAPES 25 p0054 A80-17807 Partial discharge performance of lapped plastic PLASMA LOSS insulation for superconducting power transmission cables and the dielectric strength Transverse particle losses in axially asymmetrical open traps of supercritical helium gas 25 p0055 A80-17840 [BNL-24779] 25 p0170 N80-15346 PLASEA PHYSICS PLASTICS The physics of laser fusion --- Book Petrochemicals: Their economic significance in 25 p0019 A80-12049 the domestic economy [PB-299733/6] Review of tokamak experiments

25 p0034 A80-13342

25 p0043 A80-16264

The physics of closed cycle MHD power generation

25 p0181 N80-15992

SUBJECT INDEX POROUS PLATES

LATIBUE  The methanol-air fuel cell - A sel  methanol oxidation mechanisms at electrodes in acid electrolytes	platinum	Effects of conditioning agents on coal-fired boilers: Test report [PB-299192/5] Coal sulfur measurements	no. 2 25 p0165 N80-14591
LUMES	25 p0042 A80-16146	[PB-299575/1] Sulfur fixation during coal gasifi	
Ambient air measurements of petrol emissions	25 p0018 A80-11992	desulfurizing to reduce air poll [PB-301104/6] EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979	25 p0169 N80-15296 ization) survey:
Measurements of gas-to-particle co plumes from five coal-fired elec	tric power plants 25 p0089 A80-21010	plants [PB-259399/6]	25 p0179 N80-15682
COTONION OXIDES  General-purpose heat source develones  Design requirements  [LA-7385-SR]	25 p0114 N80-11608	Pilot scale evaluation of NOx comb for pulverized coal, phase 2 [FB-299325/1] Investigation of the effects of th of an oxidation catalyst on a di	25 p0180 N80-15687 ne installation
General-purpose heat source project safety program and radioisotopic safety program plutonium oxi	: terrestrial .de	vehicle [FB-299928/2]	25 p0180 N80-15699
[LA-7519-PR] PHEUHATIC EQUIPMENT Hodeling and experimental analysis	25 p0118 N80-11889 s of a fluidic	POLLUTION MONITORING Analysis of tarry fractions in em- from low temperature oxidation of	issions resulting of brown coal 25 p0007 A80-11448
generator [ASME PAPER 79-DET-9] POINTING CONTROL SYSTEMS	25 p0041 A80-15705	Ambient air measurements of petro: emissions	leum refinery  25 p0018 A80-11992
Heliostat Beam Characterization S computerized video radiometer to solar collector	ystem echnique for 25 p0022 180-12627	Measurement of gaseous hydrogen cl from municipal refuse energy rec the United States	hloride emissions
An electronic device for intermit			25 p0019 A80-12128
of sun in solar collectors	25 p0027 A80-12782	Laboratory evaluation of two lases systems	25 p0031 A80-12964
POLARIZATION (CHARGE SEPARATION) Synthetic molecular organizates	25 p0073 A80-18752	Energetics aspects of environments	al protection 25 p0072 A80-18733
POLICIES A policy-sensitive model of techno	ology assessment 25 p0004 A80-11140	Measurements of gas-to-particle con plumes from five coal-fired elec-	
POLITICS Soft and hard energy paths - The : political, technical and ph	roads not taken	POLYCHYSTALS  Efficient indium tin oxide/polycr  solar cells	ystalline silicon
aspects of energy problem	25 p0007.480-11400	Silicon materials outlook study f	25 p0039 A80-15136 or 1980-1985
POLLUTION CONTROL		calendar years	05: 0455 NOO 18400
Economics of Pullman Kellogg's ma FGD system Flue Gas Desulfu	gnesium promoted rization 25 p0014 A80-11961	[NASA-CR-162541] POLYESTERS Solar concentrator with polyester	25 p0155 N80-14492
Vehicle emissions control and its development	effect on engine	reflecting surface and pendulum tracking movement	arrangement for 25 p0027 A80-12784
Hydrogen - The Denver story	25 p0C37 A80-14708	POLYMER CHEMISTRY	<del>-</del>
An optimization model for overall	25 p0038 A80-14709 urban energy	Phosphoric acid fuel-cell electro pyropolymer ceramic composites	catalysts from 25 p0012 A80-11861
planning	25 p0038 A80-14844	POLYMER MATRIX COMPOSITE MATERIALS Materials program for fiber compo	-
The use of oil shale for SO2 emis atmospheric-pressure fluidized-	bed coal combustors 25 p0064 A80-18505	[UCRL-81724] POLYMBRIC FILMS Photovoltaic energy conversion in	25 p0115 N80-11618
Fiscal year 1978 experiences at T unit 8 limestone scrubber [ASME PAPER 79-WA/APC-10]	25 p0071 A80-18623	Corrosion protection of solar-col	25 p0154 N80-14477 lector heat
First experiences with the use of large power plants	impactors in 25 p0 C74 A80-18859	exchangers with electrochemical [COO-4297-1] POLYMERS	ly deposited films 25 p0171 N80-15569
Experiences with the practical us cascade impactor in the exhaust industrial sites	e of an Andersen gas of various	Design and development of a 30 wa electrolyte fuel cell power sou calcium hydride	tt solid polymer cree fueled with 25 p0139 N80-13625
Control technology for coal-fired Northeastern U.S. A - Overview	25 p0074 A80-18861 combustion in and sulfur	[AD-A071157] POLYSTYBENE Experimental techniques and mathe	•
emissions control. B - Particul combined systems	ates, NOx and 25 p0074 A80-18883	the study of waste pyrolysis an PONDEROMOTIVE PORCES	d gasification 25 p0001 A80-10028
Wastewater treatment in coal conv [PB-297587/8] Technical assessment of thermal I	ersion 25 p0104 N80-10700	Nonlinear modification of resonan trajectories due to pondero cylindrical plasma	omotive force in
for coal fired boilers [PB-297947/4]	25 p0117 N80-11656	PONDS .	25 p0006 A80-11347
Environmental assessment report: gasification systems for SNG [PB-298109/0]	25 p0120 N80-12204	Solar pond concepts: Old and new [SERI/TP-35-208] POROUS MATERIALS	25 p0102 N80-10663
rundamental and semi-global kinet hydrocarbon combustion mode	ic mechanisms of	<pre>Improvement of the high-rate disc   of the nickel electrode</pre>	
environmentally clean power pla	int design 25 p0165 N80-14587	POROUS PLATES	25 p0010 A80-11841
[C00-4272-3] Effects of conditioning agents of coal-fired boilers: Test report the coal-fired boilers:	n emissions from	A high performance porous flat-pl	late solar collector 25 p0021 A80-12438

POWER CONDITIONING Flywheels for energy storage	Dynamic modeling of H2S clean-up processes in
25 p0019 A80-12166	coal gasification 25 p0088 180-2088
Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized	PRESSURE DISTRIBUTION
Solid-State-Satellite Solar-Power Station	Dependence of ideal MHD beta limits on current density and pressure profiles
25 p0038 180-14948	25 p0054 A80-1779
Heat pipe cooled power magnetics [NASA-CR-159659] 25 p0136 N80-13362	PHESSURE EPPECTS
Photovoltaic concentrator application experiment.	High-beta tokamaks 25 p0054 A80-1778
Phase 1: A 150 kW photovoltaic concentrator	MHD stability limits on high-beta tokamaks
<pre>power system for load-center applications with feedback into the utility grid</pre>	25 p0054 A80-1779
[DOE/CS-34267/1] 25 p0145 N80-13688	Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane
Self-reconfiguring solar cell system [NASA-CASE-LEW-12586-1] 25 p0 153 N80-14472	[EPBI-ER-1034] 25 p0 118 N80-1193
[NASA-CASE-LEW-12586-1] 25 p0 153 N80-14472 POWEE EFFICIENCY	PHESSURE MEASUREMENTS
A theoretical method for estimation of power loss	Dissociation pressure measurements on salts proposed for thermochemical energy storage
due to mismatch in solar cell I-V characteristics	[SAND-79-8033] 25 p0160 N80-14532
25 p0C25 A80-12763 Power loss in photovoltaic arrays due to mismatch	PRESSURE REDUCTION Analysis of reservoir pressure and decline curves
in cell characteristics	in Serrazzano zone, Larderello geothermal field
25 p0028 A80-12815 Optimization of multi-layer front-contact grid	25 p0075 <b>A</b> 80-1920
patterns for solar cells	PRESSURE VESSELS Interim structural design standard for solar
25 p0028 A80-12816	energy applications, phases 1 and 2 boiler
The possibilities of increasing gas turbine efficiency	and pressure vessel code
25 p0032 A80-13024	[SAND-79-8183] 25 p0146 N80-13698 PRESTRESSING
Evaluation of conductor mass and necessary voltage	Evaluation of feasibility of prestressed concrete
level for large satellite solar arrays 25 p0036 A80-14595	for use in wind turbine blades
Selective ray-absorption as means of increasing	[NASA-CR-159725] 25 p0170 N80-15553 PRIMARY BATTERIES
the efficiency of a high-temperature solar	The electrochemical characteristics of iron
<pre>energy system for Stirling engine and solar thermal rocket</pre>	sulphide in immobilized salt electrolytes
25 p0036 A80-14597	25 p0013 A80-11862 Recent advances in high temperature primary
Simplified theory of nonuniform electrical conduction for an open cycle MHD generator with	lithium batteries
shaped magnetic induction	25 p0013 A80-11863 Lithium inorganic electrolyte battery development
25 p0047 A80-16997	[AD-A0/3858] 25 c0157 N80-14505
The ampere-hour efficiency of photovoltaic solar generators	PROBABILITY DENSITY PUNCTIONS
25 p0047 A80-16999	Evaluation of nuclear power plant siting by probabilistic assessment of environmental impact
Influence of the loading factor on the performance characteristics of series MHD generators	L VTT-EN-24 ] 25 p0 118 N80-11891
25 p0061 A80-18137	PROBABILITY THEORY Solar cooling performance predictions via
Power conversion efficiency monitoring in	stochastic weather algorithms
photoelectrochemical and other solar cells 25 p0062 A80-18214	25 p0020 A80-12430
POWER LINES	Modeling and simulation of WECS assisted utility systems Wind-Electric Conversion System
The 50kA flux pump for the superconducting transmission line test bed	25 p0088 A80-20887
[LA-6953-MS] 25 p0094 N80-10443	PROCESS CONTROL (INDUSTRY) Near-term prospects for solar industrial process
Energy analysis of the basic materials utilized in	heat heat
electric power transmission systems [HCP/T5043-01] 25 p0157 N80-14510	25 p0018 A80-11988
POWER PLANTS	Optimal oil yield from in situ oil shale retorting 25 p0038 A80-14795
The influence of thermophysical properties on the	Mathematical modeling of coal gasification processes
design and sizing of geothermal power plant components	25 p0089 A80-20913
[ASHE PAPER 79-WA/HT-18] 25 p0070 A80-18593	Automated longwall guidance and control systems, phase 1
Heber geothermal demonstration power plant [EPRI-ER-863] 25 p0114 N80-11607	[NASA-CR-161329] 25 p0122 N80-12538
Waste heat rejection from geothermal power stations	Automated longwall guidance and control systems, phase 2, part 2: Vertical control system (VCS)
[ORNL/TM-6533] 25 p0125 N80-12575 POWER SERIES	[ NASA-CH-161330 ] 25 n0122 NA0-12530
Modified power law equations for vertical wind	Automated longwall guidance and control systems
profiles	phase 2, part 2: RCS, FAS, and MCS [NASA-CR-161331] 25 p0122 N80-12540
[NASA-TH-79275] 25 p0138 N80-13623 POWER SUPPLY CIRCUITS	PRODUCT DEVELOPMENT
Solar cells in practice	Development of space quality silicon solar cells at B.A.B.C.
25 p0083 A80-19844	25 n0025 a80-12762
Unconventional circuits for static voltage transformers	PRODUCTION ENGINEERING
[BMFT-FB-T-78-26] 25 p0107 N80-11368	The challenge of efficiently retorting very nonuniform beds of oil shale rubble
PRECIPITATION (CHEMISTRY)	25 n0085 ago-20453
On-line tests of organic additives for the inhibition of the precipitation of silica from	Economics of gasoline production from underground
hypersaline geothermal brine. 2: Tests of	coal gasification via mobil-H process [CONF-790405-12] 25 p0106 N80-11246
nitrogen-containing compounds, silanes, and additional ethoxylated compounds	The automated array assembly task of the low-cost
[UCID-18195] 25 p0 110 N80-11567	Silicon Solar array project, phase 2
PREDICTION ANALYSIS TECHNIQUES	Phase 2 of the array automated assembly task for
Validation of computer models for predicting radiation levels on tilted surfaces	the low cost silicon solar array project
25 p0020 A80-12429	[NASA-CB-162426] 25 p0110 N80-11565 Status of the PEATGAS process
	[CONF-781045-3] 25 p0120 N80-12199

SUBJECT INDEL QUENCHIEG (COOLING)

RODUCTION PLANNING	Impact of flywheel-transmissions on automobile performance: A logical basis for evaluation
Economic structure, aggregate production functions and the demand for energy as an intermediate	[UCBL-52758] 25 p0137 N80-13480
product: A preliminary analysis	Energy storage system for automobile propulsion,
[DOE/EIA-0103/8] 25 p0096 N80-10607 PROFILE METHOD (FORECASTING)	1978 study. 2: Detailed report [UCRL-52553-VOL-2] 25 p0181 880-15995
MEDEE 2: A model for long term energy demand	PROPYLENE
evaluation 	Behaviour of the secondary lithium electrode on alloying substrates in propylene carbonate based
[IIASA-BR-78-17] 25 policy NSU-11554 PROGRAM VERIFICATION (COMPUTERS)	electrolytes
Validation methodology for solar heating and	25 p0012 A80-11857 PUBLIC HEALTE
cooling systems 25 p0020 180-12431	Coal conversion technologies - Some health and
PROJECT HANAGEMENT	environmental effects 25 p0006 A80-11369
Managerial plan: Executive order 12003 and the National Energy Act	PUBLIC LAW
[DOE/TIC-10067] 25 p0104 N80-10965	Solar access law. Protecting access to sunlight for solar energy systems
Analysis of financial programs for energy conservation: Market simulation (penetration)	[PB-296532/5] 25 p0117 N80-11633
model as also was also	Report to Congress on the economic impact of energy actions as required by public law 93-275,
[HCP/M8662-1] 25 pull4 M80-11606 Low-temperature thermal energy storage grogram	section 18-d
annual operating plan	[DOE/PE-0007] 25 p0 181 h80-15993 PULSE GENERATORS
[ORNL/TM-6605] 25 p0125 N80-12568 Photovoltaic systems. Program summary	Developments for the high voltage test of pulsed
[DOE/ET-0019/2] 25 p0146 N80-13691	superconducting coils used in tokamak switches 25 p0081 A80-19655
US program for the immobilization of high-level nuclear wastes	PULSAR: An inductive pulse power source
[DP-MS-79-2] 25 p0149 N80-13917	[SAND-79-1246C] 25 p0 177 N80-15627
Report to the Congress on the coordination of Federal energy conservation programs involving	PULSED RADIATION Pulsed power for fusion
state and local governments	[SANC-79-0933C] 25 p0181 N80-15908
[DOE/TIC-10127] 25 p0157 N80-14515 Geothermal energy: Program summary	PUMPS Continuous coal processing method and means
[DOE/ET-0101] 25 p0161 N80-14542	[NASA-CASE-NPO-13758-2] 25 p0092 N80-10377
OTEC-1 test conductor program project management quality control	Technical and economic assessment of solar powered water pumping for remote areas
[CONF-780550-9] 25 p0163 N80-14563	[SAND-79-8187] 25 p0129 N80-12608
LNG industry: An overview of projects and costs [CONF-7811112-2] 25 p0168 N80-15278	PYROLYSIS  Experimental techniques and mathematical models in
Development of the Rocky Mountain Energy and	the study of waste pyrolysis and gasification
Environmental Technology Center: A preliminary	25 p0001 A80-10028 Molten salt pyrolysis of later for hydrocarbon
analysis [ORAU-158] 25 p0179 N80-15670	fuel production
PROJECT PLANNING JT-60 project tokamak fusion reactor design	[NASA-CASE-NPO-14315-1] 25 p0092 N80-10361 Coal conversion in flash hydropyrolysis reactors
analysis	[BNL-26209] 25 p0136 N80-13294
analysis 25 p0082 <b>A</b> 80-19709	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak Ridge
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2.	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak Ridge National Laboratory for underground coal conversion
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  25 p0105 N80-11121	[BNL-26209] 25 p0136 N80-13294 Beview of supporting research at Cak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing	[BNL-26209] 25 p0136 N80-13294 Beview of supporting research at Cak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYBOTECHNICS Recent advances in high temperature primary
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]  25 p0105 N80-11122	[BNL-26209] 25 p0136 N80-13294 Beview of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYROTECHNICS
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]  Low NO(x) heavy fuel combustor program [NASA-TH-79313]  25 p0138 N80-13624	[BNL-26209] 25 p0136 N80-13294  Review of supporting research at Cak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295  PYROTECHNICS Recent advances in high temperature primary lithium batteries
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  25 p0105 N80-11121  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]  Low NO(x) heavy fuel combustor program [NASA-TH-79313]  Systems engineering for power, program report	[BNL-26209] 25 p0136 N80-13294  Review of supporting research at Cak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295  PYROTECHNICS Recent advances in high temperature primary lithium batteries
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]  Low NO(x) heavy fuel combustor program [NASA-TH-79313]  Systems engineering for power, program report [DOE/ET-0012/2-REV] Fundamental economic issues in the development of	[BNL-26209] 25 p0136 N80-13294 Beview of supporting research at Cak Kidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYBOTECHBUCS Recent advances in high temperature primary lithium batteries 25 p0013 N80-11863
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]  LOW NO(x) heavy fuel combustor program [NASA-TH-79313]  Systems engineering for power, program report [DOE/ET-0012/2-REV]  Pundamental economic issues in the development of small-scale hydro	[BNL-26209] 25 p0136 N80-13294 Beview of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYROTECHNICS Becent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]  Low NO(x) heavy fuel combustor program [NASA-TH-79313]  Systems engineering for power, program report [DOE/ET-0012/2-REV]  Fundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  Commercialization strategy report for hydrothermal	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYROTECHBICS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q  Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  25 p0105 N80-11121  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]  25 p0105 N80-11122  Low NO(x) heavy fuel combustor program [NASA-TH-79313]  Systems engineering for power, program report [DOE/ET-0012/2-REV]  25 p0140 N80-13637  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  25 p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYROTECHBUCS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  25 p0105 N80-11121  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]  25 p0105 N80-11122  Low NO(x) heavy fuel combustor program [NASA-TH-79313]  25 p0138 N80-13624  Systems engineering for power, program report [DOE/ET-0012/2-REV]  25 p0140 N80-13637  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  25 p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak Eidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYBOTECHBUCS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q  Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165 QUALITY CONTBOL Alternative jet aircraft fuels 25 p0091 N80-10209
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]  Low NO(x) heavy fuel combustor program [NASA-TH-79313]  Systems engineering for power, program report [DOE/ET-0012/2-REV]  25 p0140 N80-13637  Fundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  25 p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYROTECHBUCS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10504
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]  Low NO(x) heavy fuel combustor program [NASA-TH-79313]  Systems engineering for power, program report [DOE/ET-0012/2-REV]  25 p0140 N80-13637  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  25 p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT]  SERAPH implementation plans	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [COMF-790630-9] 25 p0136 N80-13295 PYROTECHRICS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q  Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels  Quality assurance in alternative energy sources [RHO-SA-107] Development of an accelerated test design for
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377] 25 p0105 N80-11121  Solar power satellite system definition study, phase 2. Part 1: Midtern briefing [NASA-CR-160378] Low NO(x) heavy fuel combustor program [NASA-TH-79313] 25 p0138 N80-13624  Systems engineering for power, program report [DOE/ET-0012/2-REV] Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02] 25 p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT] SERAPH implementation plans [SERI/RR-34-152] 25 p0172 N80-15570	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYROTECHNICS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165 QUALITY CONTROL Alternative jet aircraft fuels  Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10504 predicting the service life of the solar array at Mead, Nebraska
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]  Low NO(x) heavy fuel combustor program [NASA-TM-79313]  Systems engineering for power, program report [DOE/ET-0012/2-REV]  25 p0140 N80-13637  Fundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  25 p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT]  SERN/RR-34-152]  Laminated disk flywheel program [URL-81772]  25 p0175 N80-15612	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PROTECHBICS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q  Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels 25 p0091 N80-10209 Quality assurance in alternative energy sources [RHO-SA-107] Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska [NASA-CB-162534] 25 p0154 N80-14483
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377] 25 p0105 N80-11121  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CB-160378] 25 p0105 N80-11122  Low NO(x) heavy fuel combustor program [NASA-TH-79313] 25 p0138 N80-13624  Systems engineering for power, program report [DOR/ET-0012/2-REV] 25 p0140 N80-13637  Fundamental economic issues in the development of small-scale hydro [DOR/RA-23-216.00.0-02] 25 p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT] 25 p0157 N80-14508  SERAPH implementation plans [SERI/RR-34-152] Laminated disk flywheel program [UCRL-81772] Environmental development plan ocean thermal energy conversion	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYROTECHNICS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q  Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels  Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10209 Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10504 predicting the service life of the solar array at Mead, Nebraska [NASA-CB-162534] 25 p0154 N80-14483 OTEC-1 test conductor program project management quality control
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377] 25 p0105 N80-11121  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378] 25 p0105 N80-11122  Low NO(x) heavy fuel combustor program [NASA-TM-79313] Systems engineering for power, program report [DOE/ET-0012/2-REV] 25 p0140 N80-13637  Fundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02] 25 p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT] 25 p0157 N80-14508  SERM/RR-34-152] Laminated disk flywheel program [UCRL-81772] Environmental development plan ocean thermal energy conversion [DOER-CRD-00341] 25 p0176 N80-15621	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONT-790630-9] 25 p0136 N80-13295 PYROTECHBUCS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels [RHO-SA-107] 25 p0091 N80-10209 Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10504 Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska [NASA-CB-162534] 25 p0154 N80-14483 OTEC-1 test conductor program
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377] 25 p0105 N80-11121  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CB-160378] 25 p0105 N80-11122  Low NO(x) heavy fuel combustor program [NASA-TH-79313] 25 p0138 N80-13624  Systems engineering for power, program report [DOE/ET-0012/2-REV] 25 p0140 N80-13637  Fundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02] 25 p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT] 25 p0177 N80-14508  SERAPH implementation plans [SERI/RR-34-152] Laminated disk flywheel program [UCRL-81772] Environmental development plan ocean thermal energy conversion [DOE/EDP-0034] Pission energy program of the U.S. Department of Energy, FY 1980	RENL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYROTECHNICS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels  Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10504 Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska [NASA-CB-162534] 25 p0154 N80-14483 OTEC-1 test conductor program
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377] 25 p0105 N80-11121  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378] 25 p0105 N80-11122  Low NO(x) heavy fuel combustor program [NASA-TM-79313] Systems engineering for power, program report [DOE/ET-0012/2-REV] 25 p0140 N80-13637  Fundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02] 25 p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT] 25 p0157 N80-14508  SERAPH implementation plans [SERI/RR-34-152] Laminated disk flywheel program [UCRL-81772] Environmental development plan ocean thermal energy conversion [DOE/EDP-0034] Pission energy program of the U.S. Department of Energy, FY 1980 [DOE/EDP-0089] 25 p0180 N80-15893	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYROTECHBICS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q  Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels [RHO-SA-107] 25 p0091 N80-10209 Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10504 Development of an accelerated test design for predicting the service life of the solar array at Need, Nebraska [NASA-CB-162534] 25 p0154 N80-14483 OTEC-1 test conductor program project management quality control [CONF-780550-9] 25 p0163 N80-14563 QUAHTITATIVE ANALYSIS Tetrachlorodibenzo-p-dioxin quantitation in stack-collected coal fly ash
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377] 25 p0105 N80-11121  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378] 25 p0105 N80-11122  Low NO(x) heavy fuel combustor program [NASA-TH-79313] 25 p0138 N80-13624  Systems engineering for power, program report [DOR/ET-0012/2-REV] 25 p0140 N80-13637  Fundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02] 25 p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT] 25 p0177 N80-14508  SERAPH implementation plans [SEBI/RR-34-152] Laminated disk flywheel program [UCRL-81772] Environmental development plan ocean thermal energy conversion [DOE/EDP-0034] Pission energy program of the U.S. Department of Energy, FY 1980 [DOE/ET-0089] Technical support for open-cycle MHD program project planning and systems analysis of a	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295  PYROTECHNICS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q  Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels  Quality assurance in alternative energy sources [RHO-SA-107] 25 p0091 N80-10209 Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10504 Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska [NASA-CB-162534] 25 p0154 N80-14483 OTEC-1 test conductor program project management quality control [CONF-780550-9] 25 p0163 N80-14563 QUANTITATIVE ANALYSIS Tetrachlorodibenzo-p-dioxin quantitation in stack-collected coal fly ash  QUENCHING (ATOMIC PHYSICS)
analysis  25 p0082 A80-19709  Solar power satellite system definition study, phase 2. [NASA-CR-160377] 25 p0105 N80-11121  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378] 25 p0105 N80-11122  Low NO(x) heavy fuel combustor program [NASA-TH-79313] 25 p0138 N80-13624  Systems engineering for power, program report [DOE/ET-0012/2-REV] 25 p0140 N80-13637  Pundamental economic issues in the development of small-scale hydro [DOE/ER-23-216.00.0-02] 25 p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT] 25 p0172 N80-14508  SERAPH implementation plans [SERI/RR-34-152] Laminated disk flywheel program [UCRL-81772] Environmental development plan ocean thermal energy conversion [DOE/EDP-0034]  Fission energy program of the U.S. Department of Energy, FY 1980 [DOE/ET-0089]  Technical support for open-cycle MRD program project planning and systems analysis of a magnetohydrodynamic/steam power system	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PYROTECHBICS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q  Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels [RHO-SA-107] 25 p0091 N80-10209 Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10504 Development of an accelerated test design for predicting the service life of the solar array at Need, Nebraska [NASA-CB-162534] 25 p0154 N80-14483 OTEC-1 test conductor program project management quality control [CONF-780550-9] 25 p0163 N80-14563 QUANTITATIVE ANALYSIS Tetrachlorodibenzo-p-dioxin quantitation in stack-collected coal fly ash  25 p0053 A80-17710 QUENCHING (ATONIC PHYSICS) Coulombic effects in the guenching of photoexcited
analysis  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CB-160378]  Low NO(x) heavy fuel combustor program [NASA-TH-79313]  Systems engineering for power, program report [DOE/ET-0012/2-REV]  Soloting program report  DOE/ET-0012/2-REV]  Soloting program report  Somall-scale hydro [DOE/ER-23-216.00.0-02]  Somercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT]  SERAPH implementation plans [SERI/RR-34-152]  Laminated disk flywheel program [UCEL-81772]  Environmental development plan ocean thermal energy conversion [DOE/EDP-0034]  Pission energy program of the U.S. Department of Energy, FY 1980 [DOE/ET-0089]  Technical support for open-cycle MED program project planning and systems analysis of a magnetohydrodynamic/steam power system [ANL/MED-78-11]  DODAME	REVIEW of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9]  PYROTECHNICS Recent advances in high temperature primary lithium batteries  25 p0013 A80-11863  Q  Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels  Quality assurance in alternative energy sources [RHO-SA-107] Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska [NASA-CB-162534] OTEC-1 test conductor program project management quality control [CONF-780550-9] QUANTITATIVE ANALYSIS Tetrachlorodibenzo-p-dioxin quantitation in stack-collected coal fly ash  QUENCHING (ATOMIC PHYSICS) Coulombic effects in the quenching of photoexcited Tris/2,2'-bipyridine/ruthenium/II/ and related complexes by methyl viologen electron
analysis  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]  Low NO(x) heavy fuel combustor program [NASA-TM-79313]  Systems engineering for power, program report [DOE/ET-0012/2-REV]  Systems engineering for power, program report [DOE/ET-0034]  Pundamental economic issues in the development of small-scale hydro [DOE/ER-23-216.00.0-02]  Sp p0143 N80-13637  Pundamental economic issues in the development of small-scale hydro [DOE/ER-3-2-16.00.0-02]  Sp p0143 N80-13667  Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT]  SERI/RR-34-152]  Laminated disk flywheel program [UCRL-81772]  Environmental development plan ocean thermal energy conversion [DOE/EDP-0034]  Pission energy program of the U.S. Department of Energy, FY 1980 [DOE/EDP-0034]  Pission energy program of the U.S. Department of Energy, FY 1980 [DOE/EDP-0034]  Technical support for open-cycle MED program project planning and systems analysis of a magnetohydrodynamic/steam power system [ANL/MED-78-11]  PROPANE  Plame propagation through unconfined and confined	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PROTECHBICS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels 25 p0091 N80-10209 Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10504 Development of an accelerated test design for predicting the service life of the solar array at Nead, Nebraska [NASA-CB-162534] 25 p0154 N80-14483 OTEC-1 test conductor program
analysis  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. [NASA-CR-160377]  Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CB-160378]  Low NO(x) heavy fuel combustor program [NASA-TH-79313]  Systems engineering for power, program report [DOE/ET-0012/2-REV]  Soloting program report  DOE/ET-0012/2-REV]  Soloting program report  Somall-scale hydro [DOE/ER-23-216.00.0-02]  Somercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT]  SERAPH implementation plans [SERI/RR-34-152]  Laminated disk flywheel program [UCEL-81772]  Environmental development plan ocean thermal energy conversion [DOE/EDP-0034]  Pission energy program of the U.S. Department of Energy, FY 1980 [DOE/ET-0089]  Technical support for open-cycle MED program project planning and systems analysis of a magnetohydrodynamic/steam power system [ANL/MED-78-11]  DODAME	REVIEW of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9]  PYROTECHBICS Recent advances in high temperature primary lithium batteries  25 p0013 A80-11863  Q  Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels  Quality assurance in alternative energy sources [RHO-SA-107] Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska [NASA-CB-162534] OTEC-1 test conductor program project management quality control [CONF-780550-9] QUANTITATIVE ANALYSIS Tetrachlorodibenzo-p-dioxin quantitation in stack-collected coal fly ash  QUENCHING (ATOMIC PHYSICS) Coulombic effects in the quenching of photoexcited Tris/2,2'-bipyridine/ruthenium/II/ and related complexes by methyl viologen electron transfer reactions in solar energy conversion processes  25 p0040 A80-15358
Solar power satellite system definition study, phase 2. [NASA-CR-160377] 25 p0105 N80-11121 Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378] 25 p0105 N80-11122 Low NO(x) heavy fuel combustor program [NASA-TM-79313] 25 p0138 N80-13624 Systems engineering for power, program report [DOE/ET-0012/2-REV] 25 p0140 N80-13637 Pundamental economic issues in the development of small-scale hydro [DOE/ER-23-216.00.0-02] 25 p0143 N80-13667 Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT] 25 p0157 N80-14508 SERLYRR-34-152] 25 p0172 N80-15570 Laminated disk flywheel program [UCRL-81772] 25 p0175 N80-15612 Environmental development plan ocean thermal energy conversion [DOE/EDP-0034] 25 p0176 N80-15621 Pission energy program of the U.S. Department of Energy, FY 1980 [DOE/EDP-0034] 25 p0160 N80-15893 Technical support for open-cycle MED program project planning and systems analysis of a magnetohydrodynamic/steam power system [ANL/MED-78-11] 25 p0181 N80-15942 PROPABE  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures 25 p0008 A80-11816	[BNL-26209] 25 p0136 N80-13294 Review of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 PFROTECHBUCS Recent advances in high temperature primary lithium batteries 25 p0013 A80-11863  Q Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels [RHO-SA-107] 25 p0091 N80-10209 Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10504 Development of an accelerated test design for predicting the service life of the solar array at Nead, Nebraska [NASA-CB-162534] 25 p0154 N80-14483 OTEC-1 test conductor program project management quality control [CONF-780550-9] 25 p0163 N80-14563 QUANTITATIVE ANALYSIS Tetrachlorodibenzo-p-dioxin quantitation in stack-collected coal fly ash 25 p0053 A80-17710  QUENCHING (ATOMIC PHYSICS) Coulombic effects in the quenching of photoexcited Tris/2,2'-bipyridine/ruthenium/II/ and related complexes by methyl viologen electron transfer reactions in solar energy conversion processes 25 p0040 A80-15358
Solar power satellite system definition study, phase 2. [NASA-CR-160377] 25 p01C5 N80-11121 Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378] 25 p01C5 N80-11122 Low NO(x) heavy fuel combustor program [NASA-TH-79313] 25 p0138 N80-13624 Systems engineering for power, program report [DOE/ET-0012/2-REV] 25 p0140 N80-13637 Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02] 25 p0143 N80-13667 Commercialization strategy report for hydrothermal electric and direct heat application project planning of geothermal resources for geothermal energy conversion for heating electricity generation [TID-28840-DRAFT] 25 p0177 N80-14508 SERAPH implementation plans [SEBI/RR-34-152] 25 p0172 N80-15570 Laminated disk flywheel program [UCRL-81772] 25 p0175 N80-15612 Environmental development plan ocean thermal energy conversion [DOE/EDP-0034] 25 p0176 N80-15621 Pission energy program of the U.S. Department of Energy, FY 1980 [DOE/ET-0089] 25 p0180 N80-15893 Technical support for open-cycle HHD program project planning and systems analysis of a magnetohydrodynamic/steam power system [ANL/HHD-78-11] 25 p0181 N80-15942 PROPANE Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures	REVIEW of supporting research at Cak hidge National Laboratory for underground coal conversion [CONF-790630-9]  PYROTECHBICS Recent advances in high temperature primary lithium batteries  25 p0013 A80-11863  Q  Q SWITCHED LASERS A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165  QUALITY CONTROL Alternative jet aircraft fuels  Quality assurance in alternative energy sources [RHO-SA-107] Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska [NASA-CB-162534] OTEC-1 test conductor program project management quality control [CONF-780550-9] QUANTITATIVE ANALYSIS Tetrachlorodibenzo-p-dioxin quantitation in stack-collected coal fly ash  QUENCHING (ATOMIC PHYSICS) Coulombic effects in the quenching of photoexcited Tris/2,2'-bipyridine/ruthenium/II/ and related complexes by methyl viologen electron transfer reactions in solar energy conversion processes  25 p0040 A80-15358

R	World Energy Data System (WENDS). Volume 11: Nuclear fission program summaries [ANL-PMS-79-2-VOL-11] 25 c0124 N80-125/
Physical modelling of the electromagnetic heating	[AML-PBS-79-2-VOL-11] 25 pO124 N80-125( US program for the immobilization of high-level nuclear wastes
of oil sand and other earth-type and biological materials  25 p0020 A80-12311	[DP-MS-79-2] 25 p0149 N80-139 RADIOGRAPHY
nulti-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation	X-ray measurement of laser fusion targets using least squares fitting 25 -2000 account
[ASBE PAPER 79-WA/HT-67] 25 p007C A80-18600	RADIOISOTOPE BATTERIES  Cooling a radioisotope power source in the Space
Conversion of radiant energy into chemical energy [UCBL-TEANS-11427] 25 p0114 N80-11609 RADIATION CHEMISTRY	[ASME PAPER 79-ENAS-44] 25 p0039 A80-1526
Coulombic effects in the quenching of photoexcited Tris/2,2'-bipyridine/ruthenium/II/ and related complexes by methyl viologen electron	Photophysical and chemical processes affecting the stability of the thiazine dye-iron system in
transfer reactions in solar energy conversion processes	hydrogen production 25 p0033 A80-1319
PADIATION DAMAGE Solar panels exposed to cosmic rays	Beliostat Beam Characterization System computerized video radiometer technique for solar collector
25 p0008 A80-11825 Some implications of a cellular structure in minimum thickness fusion reactor blankets	RAIL TRANSPORTATION  Development of a coding college.
25 p0081 A80-19663 Electron radiation damage of (AlGa) As-GaAs solar	Development of a sodium/sulphur battery for rail applications  25 p0031 A80-1300
cells [NASA-CR-162425] 25 p0110 N80-11564 Space solar cells: High efficiency and radiation	The status of advanced propulsion systems for urban rail vehicles [FB-297980/5] 25 p0132 ven 1206
damage [NASA-TM-81387] 25 p0170 N80-15554 RADIATION DISTRIBUTION	Bulletin of the Division of Mechanical Engineering and the National Meronautical Establishment design of a gas pipeline station control system
Validation cf computer models for predicting radiation levels on tilted surfaces 25 p0020 A80-12429	and a railway switch car [AD-A074885] 25 p0182 N80-1602
Effect of microwave radiation on the	RAMAN SPECTRA  Remote sensing of LNG spill vapor dispersion using  Raman LIDAR
voltage-current characteristics of a variable-thickness Josephson microbridge	[UCRL-13984] 25 p0103 N80-1068 RANKINE CYCLE
25 p0035 A80-14430 Circumsolar radiation data for central receiver simulation	Selection of working fluids for low temperature solar thermal power cycles
[LBL-8371] 25 p0131 N80-12647  RADIATION MEASUREMENT  Measurement of insolation using CdS photoresistor	25 p0024 A80-1275 A parametric study of solar thermal power plant 25 p0024 A80-1275 OTEC - Solar energy from the sea
25 p0047 A80-16998 Measurement of circumsolar radiation: Status report	25 p0085 A80-20424 Evaluation of solar Rankine-cycle engine systems
[LBL-8391] 25 p0133 N80-12982  RADIATION TOLERANCE A theoretical evaluation and optimization of the radiation resistance of gallium arsenide solar-cell structures	[SAND-78-0986] 25 p0125 N8C-1257 Sandia Laboratories operational experience with small heat engines in solar thermal power systems [SAND-78-2163C] 25 n0146 N8C-1360
RADIATIVE HEAT TRANSFER 25 p0046 A80-16794	The electric trolley bus - Revisited
Heat transfer in the channel of a high-power MHD generator	25 p0002 A80-1032 Bydrogen fuel applications for urban transit 25 p0037 A80-14703
25 p0035 A80-14516 A study of the thermal effect that radiant energy, produces on a mass of water Spanish thesis	rapid transit systems  25 p0.062 ABD-19.65
25 p0040 A80-15653 Heat transfer analysis of receivers for a solar concentrating collector	The status of advanced propulsion systems for urban rail vehicles [PB-297980/5] 25 p0133 N80-12962
[ASME PAPER 79-WA/SOL-20] 25 p0065 A80-18558 Heat transfer including radiation and slag particles evolution in MHD channel. I	RABE GASES  Kinetics of the processes in a plasma produced by an electron beam in a dense inert gas
[AIAA PAPER 80-0250] 25 p0076 A80-19304 RADIATIVE TRANSFER	REACTION CONTROL 25 p0007 A80-11612
Development of optical waveguides for a power-related application of solar radiation transmission	A system for the control of tritium losses in primary and steam circuits of a fusion power plant
Past-magnetosonic-wave excitation in large-tokamak	BEACTION KINETICS Effect of kinetics of thermonuclear reaction
plasmas 25 p0056 A80-17855	products upon D-T plasma parameters 25 p0007 &80-11544 Cadmium electrodes with improved surface
Design of antennae for R.F. power coupling to tokamak plasma in the ion cyclotron range of frequency	characteristics for alkaline storage batteries
RADIOACTIVE ISOTOPES 25 p0079 A80-19608	rrojected mechanism for thionyl chloride and sulphuryl chloride cathode reactions
General-purpose heat source project space nuclear safety program and radioisotopic terrestrial safety program plutonium oxide	on NO/x/ chemical kinetics
[LA-7519-PR] 25 p0118 N80-11889 RADIOACTIVE WASTES Quality assurance in alternative energy sources	Influence of electrolyte composition on electrode kinetics in the molten carbonate fuel cell [CONF-781063-2] 25 p0115 N80-11615
[RHC-5A-107] 25 p0095 N80-10504	,

SUBJECT INDEX REPRACTIVITY

Materials compatibility in liquid sodium	Plasma physics and controlled nuclear fusion
[HEDL-SA-1559] 25 p0 119 N80-12147	research 1978; Proceedings of the Seventh
Elucidation of coal structural components by short	International Conference, Innsbruck, Austria,
residence-time extractive liquefaction 25 p0119 N80-12188	August 23-30, 1978. Volumes 1, 2 & 3
	25 p0053 A80-17751
Coal liquefaction short residence time process research	Impact of technology and maintainability on
[SAND-79-1400] 25 p0133 N80-13272	economic aspects of tokamak power plants
Fundamental and semi-global kinetic mechanisms of	25 p0059 A80-17884
hydrocarbon combustion models for	Fuel production characteristics of fusion hybrid
environmentally clean power plant design	reactors
[COO-4272-3] 25 p0165 N80-14587	25 p0059 A80-17888
Low temperature reaction path for coal liquefaction	Surmary on inertial-confinement fusion
[SAND-79-0738C] 25 p0169 N80-15288	25 p0059 A80-17693
BACTOR DESIGN	Summary on reactor systems tokamak devices
The physics of laser fusion Book	25 p0059 A80-17894
25 p0019 A80-12049	Developments for the high voltage test of pulsed superconducting coils used in tokamak switches
Developments in Sandia Laboratories particle beam	25 p0081 A80-19655
fusion programme of -0057 ≥00-17967	World Energy Data System (WENDS). Volume 11:
25 p0057 A80-17867	Nuclear fission program summaries
The United States programme in heavy ion beam fusion 25 p0058 A80-17873	[ANL-PMS-79-2-VOL-11] 25 p0124 N80-12562
	Coal liquefaction short residence time process
Low-aspect-ratio limit of the toroidal reactor -	research
The spheromak 25 p0058 A80-17876	[SAND-79-1400] 25 p0133 N80-13272
Concept of tokamak-type reactor with	REAL TIME OPERATION
high-temperature blanket	RAPAD - Real-time Accurate Performance Analysis of
25 p0059 A80-17885	Data for performance estimation of wind
Testing and performance of the 30 km obmic heating	energy conversion system
system for ASDEX tokamak experiment with	[ASME PAPER 79-WA/SOL-1] . 25 p0066 A80-18565
axisymmetric diverter	RECEIVERS
25 p0078 A80-19585	Novel ceramic receiver for solar Erayton systems
A new high beta reversed field pinch machine	[COO-4878-3] 25 p0 146 N80-13694
25 puu/8 A80-1958/	Evaluation of the evacuated solar annular
Poloidal magnetic field design of a pulsed tokamak	receivers used at the Midtemperature Solar
reactor	Systems Test Facility (MSSTF) [SAND-78-0983] 25 p0173 N80-15585
25 p0078 A80-19592	RECOMBINATION REACTIONS
Optimization of stabilized imploding liner fusion	Pailure mechanisms of vented nickel-cadmium cells
reactors 25 p0079 A80-19593	in overcharge
Influence of the scaling of plasma confinement on	25 p0010 A80-11840
the economy and unit size of ignited toroidal	RECURSIVE PURCTIONS
reactors	RAPAD - Real-time Accurate Performance Analysis of
25 p0079 A80-19594	Data for performance estimation of wind
The effect of classical and anomalous transport on	energy conversion system
the performance of Tandem Mirror reactors	[ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565
25 p0079 A80-19596	RECYCLING
Electrical power system to TFTR poloidal coils	Energy conservation through recycling
25 p0080 A80-19620	25 p0003 A80-10842
The combined d.c. power supply for JET Joint	Waste utilization as an energy source. `Citations
The combined d.c. power supply for JET Joint European Torus	from the International Aerospace Abstracts Data
European Torus 25 p0080 A80-19621	from the International Aerospace Abstracts Data Base
European Torus 25 p0080 A80-19621 Blanket and power conversion system of NURMAK	from the International Merospace Abstracts Data Base [NTIS/gs-79/0765/2] 25 p0102 N80-10667
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NURMAK tokamak reactor	from the International Merospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from
European Torus 25 p0080 A80-19621 Blanket and power conversion system of NUMMAK tokamak reactor 25 p0081 A80-19658	from the International Merospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUWMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in	from the International Merospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets	from the International Merospace Abstracts Data Base [MTIS/PS-79/0765/2] 25 p0102 M80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COO-2893-10] 25 p0159 M80-14524 Heasurements and standards for recycled oil - 2
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NURMAK  tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in  minimum thickness fusion reactor blankets  25 p0081 A80-19663	from the International Merospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets  25 p0081 A80-19663  JT-60 project tokamak fusion reactor design	from the International Merospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COO-2893-10] 25 p0159 N80-14524 Heasurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COO-2893-9] 25 p0174 N80-15595
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets  25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis	from the International Merospace Abstracts Data Base [MTIS/ps-79/0765/2] 25 p0102 M80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COO-2893-10] 25 p0159 M80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 M80-15275 Energy optimal use of waste paper [COO-2893-9] 25 p0174 M80-15595 Energy conservation through point source recycle
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709	from the International Merospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMBAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis	from the International Merospace Abstracts Data Base [NTIS/PS-79/0765/2] Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] Measurements and standards for recycled oil - 2 [PB-299951/4] Energy optimal use of waste paper [COC-2893-9] Energy conservation through point source recycle with high temperature hyperfiltration textile industry
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMBAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production	from the International Merospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15595 Energy conservation through point source recycle with high temperature hyperfiltration
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUWMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification	from the International Merospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15595 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [PB-299183/4] 25 p0180 N80-15688 REFINING
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMBAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NAS-CR-61322] 25 p0092 N80-10379	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15595 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [PB-299183/4] 25 p0180 N80-15688 ERFINING Ambient air measurements of petroleum refinery
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMBAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NAS-CR-61322] 25 p0092 N80-10379	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Beasurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15295 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions
Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets  25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHB)	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15295 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [PB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMBAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHB) [WFPS-THE-107]  25 p0132 N80-12898	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15595 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992 REFLECTANCE
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMBAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322] 25 p0092 N80-10379  Conceptual design of a Demonstration Tokamak Hybrid Beactor (DTHR) [WPPS-THE-107] Pulsed power for fusion	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [CG0-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [CG0-2893-9] 25 p0174 N80-15295 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [PB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992 BEFLECTANCE Textured silicon - A selective absorber for solar
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets  25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHB) [WFPS-THE-107]  Pulsed power for fusion [SAND-79-0933C]  25 p0181 N80-15908	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15295 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 ERFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992  REFLECTANCE Textured silicon - A selective absorber for solar thermal conversion
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMBAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHB) [WFPS-THE-107] Pulsed power for fusion [SAND-79-0933C]  25 p0181 N80-15908  REACTOR MATERIALS	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COO-2893-9] 25 p0174 N80-15595 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 ERFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992 REFLECTANCE Textured silicon - A selective absorber for solar thermal conversion 25 p0034 A80-13980
European Torus  25 p0080 A80-19621  Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets  25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHB) [WFPS-THE-107] Pulsed power for fusion [SAND-79-0933C]  ERACTOR MATERIALS Microstructural objectives for high-temperature	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15295 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992 REFLECTANCE Textured silicon - A selective absorber for solar thermal conversion 25 p0034 A80-13980 REFIRCTORS
Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHB) [WFPS-THE-107] Pulsed power for fusion [SAND-79-0933C]  SEMCTOR MATERIALS Microstructural objectives for high-temperature alloys in advanced energy systems	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15595 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [PB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992 REFLECTANCE Textured silicon - A selective absorber for solar thermal conversion 25 p0034 A80-13980  REFILECTORS Effect of boosters on the performance of flat
Blanket and power conversion system of NUMBAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHB) [WFPS-TME-107] Pulsed power for fusion [SAND-79-0933C]  PRACTOR HATERIALS Microstructural objectives for high-temperature alloys in advanced energy systems 25 p0002 A80-10306	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15295 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992 REFLECTANCE Textured silicon - A selective absorber for solar thermal conversion 25 p0034 A80-13980 BEFLECTORS Effect of bocsters on the performance of flat plate collector 25 p0023 A80-12744
Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322] 25 p0092 N80-10379  Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHB) [WFPS-THE-107] 25 p0132 N80-12898 Pulsed power for fusion [SAND-79-0933C] 25 p0181 N80-15908  REACTOR MATERIALS Microstructural objectives for high-temperature alloys in advanced energy systems 25 p0002 A80-10306	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15295 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992 REFLECTANCE Textured silicon - A selective absorber for solar thermal conversion 25 p0034 A80-13980 BEFLECTORS Effect of bocsters on the performance of flat plate collector 25 p0023 A80-12744
Blanket and power conversion system of NUMBAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHB) [WFPS-THE-107] Pulsed power for fusion [SAND-79-0933C]  PREACTOR MATERIALS Microstructural objectives for high-temperature alloys in advanced energy systems 25 p0002 A80-10306  REACTOR SAFETY Coneral-nurpose heat source project space nuclear	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COO-2893-9] 25 p0174 N80-15595 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 ERFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992  REFLECTANCE Textured silicon - A selective abscrber for solar thermal conversion 25 p0034 A80-13980  REFLECTORS Effect of bocsters on the performance of flat plate collector 25 p0023 A80-12744  Computer simulation results for planar reflectors and flat plate solar collectors
Blanket and power conversion system of NUMBAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHB) [WFPS-TNE-107] Pulsed power for fusion [SAND-79-0933C]  ERACTOR MATERIALS Microstructural objectives for high-temperature alloys in advanced energy systems 25 p0002 A80-10306  REACTOR SAFETT General-purpose heat source project space nuclear safety program and radioisotopic terrestrial	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15595 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992  REFLECTANCE Textured silicon - A selective abscrber for solar thermal conversion 25 p0034 A80-13980  REFIRCTORS Effect of bocsters on the performance of flat plate collector 25 p0023 A80-12744 Computer simulation results for planar reflectors
Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Beactor (DTHR) [WFPS-TNE-107] Pulsed power for fusion [SAND-79-0933C]  ERACTOR MATERIALS Microstructural objectives for high-temperature alloys in advanced energy systems 25 p0002 A80-10306  REACTOR SAPETI General-purpose heat source project space nuclear safety program plutonium oxide	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2833-9] 25 p0174 N80-15595 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992  REFLECTANCE Textured silicon - A selective abscrber for solar thermal conversion 25 p0034 A80-13980  REFLECTORS Effect of bocsters on the performance of flat plate collector 25 p0023 A80-12744 Computer simulation results for planar reflectors and flat plate solar collectors [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559 REFERCTION
Blanket and power conversion system of NUMBAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Beactor (DTHR) [WFPS-THE-107] Pulsed power for fusion [SAND-79-0933C]  PRACTOR MATERIALS Microstructural objectives for high-temperature alloys in advanced energy systems  SPECTOR SAPETY General-purpose heat source project space nuclear safety program and radioisotopic terrestrial safety program plutonium oxide [LA-759-PR]  PRACTOR STARTUP TESTS	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15295 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992 REFLECTANCE Textured silicon - A selective absorber for solar thermal conversion 25 p0034 A80-13980 BEFLECTORS Effect of bocsters on the performance of flat plate collector 25 p0023 A80-12744 Computer simulation results for planar reflectors and flat plate solar collectors [ASBE PAPER 79-WA/SOL-37] 25 p0066 A80-18559 BEFRACTION Seismic refraction investigation of the Salton Sea
Blanket and power conversion system of NUMBAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Beactor (DTHR) [WFPS-THE-107] Pulsed power for fusion [SAND-79-0933C]  PRACTOR MATERIALS Microstructural objectives for high-temperature alloys in advanced energy systems  SPECTOR SAPETY General-purpose heat source project space nuclear safety program and radioisotopic terrestrial safety program plutonium oxide [LA-759-PR]  PRACTOR STARTUP TESTS	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Beasurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15295 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 EEFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992  REFLECTANCE Textured silicon - A selective absorber for solar thermal conversion 25 p0034 A80-13980  EEFILECTORS Effect of bocsters on the performance of flat plate collector 25 p0023 A80-12744  Computer simulation results for planar reflectors and flat plate solar collectors [ASHE PAPER 79-WA/SOL-37] 25 p0066 A80-18559  EEFRACTION Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California
Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHR) [WFPS-THE-107] Pulsed power for fusion [SAND-79-0933C]  BEACTOR MATERIALS Microstructural objectives for high-temperature alloys in advanced energy systems 25 p0002 A80-10306  REACTOR SAFETI General-purpose heat source project space nuclear safety program and radioisotopic terrestrial safety program plutonium oxide [LA-7519-PR]  25 p0118 N80-11889  BEACTOR STARTUP TESTS Volt-second consumption during the start-up phase	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15595 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992 REFLECTANCE Textured silicon - A selective absorber for solar thermal conversion 25 p0034 A80-13980 REFIRCTORS Effect of bocsters on the performance of flat plate collector 25 p0023 A80-12744 Computer simulation results for planar reflectors and flat plate solar collectors [ASHE PAPER 79-WA/SOL-37] 25 p0066 A80-18559 BEFRACTION Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3] 25 p0118 N80-11711
Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Beactor (DTHR) [WFPS-TNE-107] Pulsed power for fusion [SAND-79-0933C]  SEACTOR MATERIALS Microstructural objectives for high-temperature alloys in advanced energy systems 25 p0002 A80-10306  REACTOR SAPETI General-purpose heat source project space nuclear safety program plutonium oxide [LA-7519-PR] 25 p0118 N80-11889  REACTOR STARTUP TESTS Volt-second consumption during the start-up phase	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15595 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [PB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992 REFIECTANCE Textured silicon - A selective absorber for solar thermal conversion 25 p0034 A80-13980 REFIECTORS Effect of bocsters on the performance of flat plate collector 25 p0023 A80-12744 Computer simulation results for planar reflectors and flat plate solar collectors [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559 REFIRACTION Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3] 25 p0118 N80-11711 REFERACTIVITY
Blanket and power conversion system of NUMMAK tokamak reactor  25 p0081 A80-19658  Some implications of a cellular structure in minimum thickness fusion reactor blankets 25 p0081 A80-19663  JT-60 project tokamak fusion reactor design analysis  25 p0082 A80-19709  Coal conversion processes and analysis methodologies for synthetic fuels production technology assessment and economic analysis of reactor design for coal gasification [NASA-CR-161322]  Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHR) [WFPS-THE-107] Pulsed power for fusion [SAND-79-0933C]  BEACTOR MATERIALS Microstructural objectives for high-temperature alloys in advanced energy systems 25 p0002 A80-10306  REACTOR SAFETI General-purpose heat source project space nuclear safety program and radioisotopic terrestrial safety program plutonium oxide [LA-7519-PR]  25 p0118 N80-11889  BEACTOR STARTUP TESTS Volt-second consumption during the start-up phase	from the International Aerospace Abstracts Data Base [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Energy conservation in the US economy from increased recycle of obsolete steel scrap [COC-2893-10] 25 p0159 N80-14524 Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275 Energy optimal use of waste paper [COC-2893-9] 25 p0174 N80-15595 Energy conservation through point source recycle with high temperature hyperfiltration textile industry [FB-299183/4] 25 p0180 N80-15688 REFINING Ambient air measurements of petroleum refinery emissions 25 p0018 A80-11992 REFLECTANCE Textured silicon - A selective absorber for solar thermal conversion 25 p0034 A80-13980  REFIRCTORS Effect of bocsters on the performance of flat plate collector 25 p0023 A80-12744 Computer simulation results for planar reflectors and flat plate solar collectors [ASHE PAPER 79-WA/SOL-37] 25 p0066 A80-18559  REFRACTION Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3] 25 p0118 N80-11711

REPRACTORY MATERIALS

REPRACTORY MATERIALS	Now approach for The second
Evaluation of sintered SiC as an electrode and	New approach for Vlasov equilibrium of a relativistic electron beam in a plasma medium
container material in sodium/sulfur cells	25 p0085 A80-20538
25 p0035 A80-14588 Program to discover materials suitable for service	BELATIVISTIC PLASMAS
under hostile conditions obtaining in equipment	Relativistic high-current microwave plasma electronics
for the gasification of coal and other solid fuels	25 p0083 A80-19847
[FE-1784-42] 25 p0106 880-11248 REPRIGERATING	RELAXATION TIME
Heat exchange fluids and techniques Book	Studies on plasma formation, relaxation and
25 p0041 A80-15659	heating in a reversed-field pinch 25 p0054 A80-17811
REPRIGERATING MACHINERY	HELIABILITY ANALYSIS
Experimental investigations of an intermittent ammonia-water solar refrigerator	Economics/reliability trade-offs in materials for
25 p0028 A80-12786	various coal conversion and utilization processes
The analysis and simulation of an open cycle	25 p0016 A80-11975 Reliability studies on thin film solar cells for
absorption refrigeration system	satellite application
25 p0029 A80-12825 Development of a high temperature solar powered	25 p0 027 A80-12775
water chiller. Volume 3: Phase 1	Modified aerospace reliability and quality assurance method for wind turbines
[SAN-1590-1/3-VOL-3] 25 p0101 N80-10654	[NASA-TH-79284] 25 p0137 N80-13490
Intermediate report on the performance of plate-type ice-maker heat pumps	A probabilistic study of wind-electric conversion
[ORNL/CON-23] 25 p0176 N80-15619	systems from the point of view of reliability and capacity credit
REFRIGERATORS	25 p0153 N80-14475
Maximum cold-generation capacity of thermoelectric refrigerators	RELIABILITY ENGINERRING
25 p0035 A80-14594	Improving the reliability of capacitance batteries
REFUELING	in power grids with higher-harmonic sources
Refueling by means of pellets - Ablation rate and	25 p0008 A80-11671 Photovoltaic power system reliability considerations
injection velocity considerations effects on plasma confinement in tokamak	[ NASA-TH- /9291] 25 p0170 N80-15422
25 p0080 A80-19611	REMOTE SERSORS
REGENERATION (ENGINEERING)	Laboratory evaluation of two laser fluorosensor systems
Performance characteristics of solar regenerators	25 p0031 A80-1296#
25 p0028 A80-12787 Novel gas turbine cycles with coal gasification	REQUIREMENTS
[ASME PAPER 79-WA/ENER-6] 25 p0071 A80-18646	Residential photovoltaic module and array requirements study, appendices
Open cycle air turbine solar thermal power system	[ NASA-CR-162529 ] 25 p0 154 N80-14481
25 p0083 A80-19989	Residential photovoltaic module and array
Regenerative process for desulfurization of high temperature combustion and fuel gases	requirements study
[BNL-50944] 25 p0134 N80-13277	[NASA-CR-162528] 25 p0154 N80-14482 RESEARCE
REGEBERATIVE FORL CELLS	Assessment of long term research needs for
Hydrogen-halogen energy storage system [BNL-50924] 25 p0139 N80-13632	coal-gasification technologies
REGENERATORS	[PB-297853/4] 25 p0107 N80-11255 RESEARCH AND DEVELOPMENT
Solar system with a hermetically and	Is there a chance for OTEC
nonhermetically vitrified regenerative heater and its energetic indices	25 p0007 A80-1130#
25 p0051 A80-17244	Power sources 7: Research and development in non-mechanical electrical power sources;
Study of heat-pipe heat exchanger in the small gas	Proceedings of the Eleventh International
turbine engine system	Symposium, Brighton, Sussex, England, September
25 p0091 N80-10022 Pluid Dynamics of Porous Media in Energy	25-28, 1978
Applications, volume 2	25 p0009 A80-11837 Materials research - Probable impacts on solar
[VKI-LEC-SER-1979-4-VOL-2] 25 p0121 N80-12346	energy
Sintered silicon nitrode recuperator fabrication [NASA-CR-159706] 25 p0167 N80-15263	25 p0018' A80-11991
REGIONAL PLANNING	Programme and progress of DST sponsored solar photovoltaic work in India
Global perspectives and options for long-range	25 p0025 A80~12760
energy strategies	The R&D programme of the European communities in
25 p0048 A80-17130 The effects of regional insolation differences	the field of hydrogen - Progress and results
upon advanced solar thermal electric power plant	25 p0032 A80-13195 The promise and puzzle of electric vehicles
performance and energy costs	25 p0039 A80-15175
A regional approach to forecasting electric energy	Electric and hybrid vehicles Book
requirements for environmental assessments	25 p0041 A80-15658 Report on Finnish technological activities
25 p013C N80-12619	25 p0119 N80-11991
Energy system in the Par West: Impacts of the	Inventory of advanced energy technologies and
National Energy Act of 1978	energy conservation research and development,
[OCRL-52754] 25 p0140 N80-13638	1976-1978, volume 1 [GPC-41-481] 25 p0122 M80-12550
Barriers to the application of wind energy	Research and development of an advanced process
conversion systems in urban settings 25 p0155 N80-14494	for conversion of coal to synthetic gasoline and
REINFORCING FIBERS	other distillate motor fuels [FE-1800-33] 25 p0135 N80-13287
Materials program for fiber composite flywheels	Status of the DOE/NASA critical gas turbine
[UCRL-81724] 25 p0 115 N80-11618 RELATIVISTIC ELECTRON BRANS	research and technology project
Investigation of plasma heating by powerful	[NASA-TM-79307] 25 p0155 N80-14493 RESEARCH MANAGEMENT
relativistic electron beams	A policy-sensitive model of technology assessment
25 p0056 A80-17857 Inertial confinement fusion research at Osaka	25 p0004 A80-11140
25 p0057 A80-17868	Development of renewable energy sources in the United Kingdom
Relativistic high-current microwave plasma	25 p0017 A80-11980

25 p0C83 A80-19847

25 p0017 A80-11980

electronics

SUBJECT INDEX RIBBONS

An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory	BESIDUES Gasification of residual materials from coal liquefaction. Evaluation of SBC 2 vacuum flash
25 p0022 A80-12628  The R&D programme of the European communities in the field of hydrogen - Frogress and results	drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes [FE-2247-2] 25 p0119 #80-12191
25 p0032 A80-13195 Quality assurance in alternative energy sources	Gasification of residual materials from coal liquefaction
[RHO-SA-107] 25 p0095 N80-10504 Natural gas reserves estimates: A good federal	[FE-2247-22] 25 p0135 N80-13289 RESIN BONDING
program emerging, but problems and duplications persist	Plastic bonded electrodes for nickel-cadmium accumulators. I - Cadmium electrode
[PB-296628/2] 25 p0103 N80-10679 Proposed research planning format for the	25 p0043 A80-16147 RESISTANCE HEATING
Environmental Assessment Department needs and concerns of groups concerned with	Heating, confinement and fluctuations in the CLEC stellarator 25 p0055 A80-17826
environment and energy issues [EPRI-BA-1018] 25 p0103 M80-10692 Solar power satellite system definition study,	Electric heat - The right price at the right time 25 p0062 A80-18184
phase 2. [NASA-CR-160377] 25 p0105 N80-11121	Testing and performance of the 30 kA ohmic heating system for ASDEX tokamak experiment with
Solar power satellite system definition study, phase 2. Part 1: Midterm briefing [NASA-CR-160378]	axisymmetric diwerter 25 p0078 A80-19585 Electrical power system to TFTR poloidal coils
Table   Tabl	25 p0080 A80-19620 Steady-state currents driven by collisionally
Proceedings: Solar Thermal Power User Beview Panel Meeting	damped lower-hybrid waves in plasma 25 p0084 A80-20157
[SERI/TP-69-221] 25 p0113 N80-11598 · Status of information for consumers of small wind energy systems	Study of current-driven magnetchydrodynamic instability in the Heliotron-D device 25 p0084 &80-20159
[SERI/TP-51-158] 25 p0113 N80-11602 Southeastern forum on appropriate technology	RESONANT PREQUENCIES  Critical speeds and natural frequencies of
[PB-298796/4] 25 p0118 N80-11965 Low-temperature thermal energy storage program	rim-type composite-material flywheels [SAND-78-7049] 25 p0176 %80-15622
annual operating plan	RESOURCE ALLOCATION Global options for short-range alternative energy
[ORNL/TM-6605] 25 p0125 N80-12568 Underground coal conversion. Program description	strategies
[DOE/ET-0100] 25 p0136 N80-13293 Review of supporting research at Oak Ridge National Laboratory for underground coal	25 p0048 A80-17129  Energy policy and decision analysis; new concepts and mechanisms
conversion [CONF-790630-9] 25 p0136 N80-13295	[LA-7909-MS] 25 p0140 N80-13634 BESOURCES MANAGEMENT
Solar heating and cooling research projects: A summary	An engine fuel chemistry solution to the problem of jet fuel supplies
[EPRI-ER-1095-SR] 25 p0147 N80-13703 West Coast Forum on Appropriate Technology	25 p0001 A80-10199 Interactive analysis methods for resource mapping
research in energy and environmental areas [PB-298986/1] 25 p0166 N80-14962	25 p0008 A80-11709 The role of coal in the world energy picture up to
RESERVOIRS Energy-storage systems pumped-storage	the year 2000 - Reserves, resources, and availability from the Western European viewpoint
hydroelectric plants, compressed-air energy-storage plants, electric batteries and hot water storage	25 p0040 A80-15625 National environmental/energy workshor assessment, phase 3. Energy programs directory of
25 p0034 A80-13513 Analysis of reservoir pressure and decline curves	courses available [PB-298587/7] 25 p0117 N80-11634
in Serrazzano zone, Larderello geothermal field 25 p0075 A80-19204 Thermodynamic behaviour of the Bagnore geothermal	National energy policy and state coastal programs: A critique of current efforts to balance environmental protection and energy production
field	along the coast
25 p0075 A80-19205 Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model	[SAN-0034/263-1] 25 p0141 N80-13643 Energy from the West: Energy resource development systems report. Volume 6: Geothermal
[PB-297274/3] 25 p0108 M80-11551 Tidal pressure response as a reservoir engineering	[PB-299182/6] 25 p0152 N80-14468 Water use alternatives for Navajo energy production
too1 [UCRL-83012] 25 p0141 N80-13647	[LA-UR-79-1598] 25 p0178 N80-15643 RETORT PROCESSING
RESIDENTIAL ARBAS	The challenge of efficiently retorting very
Residential sector energy forecasts, national level for 1978-electricity, natural gas, number two fuel oil and propane	nonuniform beds of oil shale rubble 25 p0085 A80-20453 Adsorption of hydrogen sulfide in shale retorted
[DOE/EIA-0102/50] 25 p0113 N80-11601 Residential photovoltaic module and array	in an inert atmosphere 25 p0085 <b>1</b> 80-20454
requirements study, appendices [NASA-CH-162529] 25 p0154 N80-14481	Mineral changes during oil shale retorting 25 p0085 A80-20455
Residential photovoltaic module and array requirements study [NASA-CE-162528] 25 p0154 %80-14482	RZTROFITTING  Addition of solar air heaters to a pre-engineered  metal building
Measurement of energy to heat houses: Initial study	[ASME PAPER 79-WA/SOL-33] 25 p0066 A80-18566 REVERSE FIELD PINCH
[PB-299448/2] 25 p0170 N80-15304 Application analysis of solar total energy systems to the residential sector. Volume 4: Market	Ignitron switching problems associated with a large reversed field pinch experiment
penetration [ALO-3787-4] 25 p0174 N80-15597	25 p0081 A80-19629
[820-2101-4] 23 kottu 200-12231	Silicon solar cell process development,
•	fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561
,	Method for forming a solar array strip [NASA-CASE-NPO-13652-3] 25 po153 N80-14474

RIBG STRUCTURES		C11.7.7.7.7.7.7	
Whirling response and stability of flex	rihlu	SALINITY	
mounted, ring-type flywheel systems	1	Salinity gradient power - Utili: differences	zing wapor pressure
[ASME PAPER 79-DET-71] 25 pc	0041 A80-15729	WIII CICLOS	25 p0003 A80-10524
RISK		Salt power - Is Neptune's ole sa	alt a tiger in the
The scope of environmental risk manager		tank fresh/salt water osmo	otic pressure
RIVER BASINS	0053 A80-17743	difference for electrical gene	eration
Energy development vs water quality in	the upper	SALTON SEA (CA)	25 p0045 A80-16654
Colorado and upper Missouri River Bas	sins	Using surface waters for supplem	conting indepti-
[LA-7497-MS] 25 p(	)117 N80-11641	at the Salton Sea Geothermal R	ield (SSGP)
ROCKET ENGINES		Southern California	(5551)
Selective ray-absorption as means of in the efficiency of a high-temperature	creasing	[UCBL-83011]	25 p0124 N80-12561
energy system for Stirling engine	solar	Tidal pressure response as a res	servoir engineering
thermal rocket	s and solar	tool [UCRL-83012]	25 2454 554
25 pC	036 A80-14597	Geothermal energy development fr	25 p0141 N80-13647
ROTARY STABILITY		Trough to the High Cascades	- Cerro Preto.
Wind energy conversion system with elect	tromagnetic	Lower California and Mt. Hood,	Oregon
	0031 A80-13004	[LBL-8703]	25 p0171 N80-15568
Whirling response and stability of flex	161 x 60-13004	SANDS	
mounted, ring-type flywheel systems	1	Geology of the Athabasca oil san	
[ASME PAPER 79-DET-71] 25 p0	041 A80-15729	SANDWICE STRUCTURES	25 p0050 A80-17236
On the weathervaning of wind turbines		Weight minimization of sandwich	type solar
Recent spin test of two composite wagon	047 A80-16952	collector panels	
flywheels	wheel	[SAND-78-2305C]	25 p0147 N80-13710
	14C N80-13640	SATELLITE ANTENNAS	di dec bee
ROTATING DISKS		Enhanced power generation of GSS solar reflectors Gravitati	/4/PS Dy Optical
Laminated disk flywheel program		Solid-State-Satellite Solar-Po	wer Station
[UCRL-81772] 25 p0 ROTATING PLASMAS	175 N80-15612		25 p0038 A80-14948
Ablation of solid hydrogen in a plasma		SATELLITE DESIGN	
	050 A80-17218	Solar power satellite system def Volume 1: Executive summary	inition study.
ROTOR ARRODYNAMICS	100 000 11210	[NASA-CR-160442]	25 50167 100 15105
The Kirsten rotor as a wind turbine		SATELLITE ORIENTATION	25 p0167 N80-15195
25 p0	039 A80-15330	Enhanced power generation of GSS	/4/PS by optical
Horizontal-axis wind generator performa warying tip speed ratio and rotor ori	ace with	Solar reflectors Gravitati	onally Stabilized
	067 A80-18571	Solid-State-Satellite Solar-Po	
A vortex model of the Darrieus turbine	- An	SATELLITE POWER TRANSMISSION (TO EA	25 p0038 A80-14948
analytical and experimental study		Earth benefits of solar power sa	min; tellites
[ASME PAPER 79-WA/FE-6] 25 p0	070 A80-18620		25 p0038 A80-14791
ROTOR BLADES (TURBOHACHINERY) The erosion/corrosion of small superall	an Annlin	Satellite Power System (SPS) pre	liminary societal
rotors operating in the effluent of a	oy turbine	assessment	
combustor	III COUL	[HCP/R4024-01/14] Satellite Power Systems (SPS) co	25 p0101 N80-10657
25 p0	001 A80-10043	study. Volume 4: SPS point de	esion definition
The Kirsten rotor as a wind turbine		[ NASA-CR-150683 ]	25 p0119 N80-12106
ROTORS	039 A80-15330	Satellite Power System (SPS): A	n overview of
Comparative performance measurements on	a Savonius	prospective organizational str	uctures in the
rotor with ancillary surfaces	- 54702245	solar satellite field [TID-29094]	26 -0454 200 44470
25 p0	042 A80-16085	SATELLITE SOLAR ENERGY CONVERSION	25 p0154 N80-14478
The Coriolis program electric power	from	Solar electric generating system	resource
moored counterrotating turbine arrays water current	in warm	requirements	
	044 A80-16653	Polishilita atualia	25 p0005 A80-11341
Wind energy innovative systems	10033	Reliability studies on thin film satellite application	solar cells for
[SERI/PR-13-054] 25 p0	144 N80-13674		25 p0027 A80-12775
RUBY LASIES A multi-pulse ruby laser recording of the		Evaluation of conductor mass and	Decessary voltage
evolution of plasma parameters by light	ne temporal	level for large satellite solar	r arrays
25 po	084 A80-20165	Solar navon estallit.	25 p0036 A80-14595
RURAL ARFAS		Solar power satellite system defi Volume 1: Executive summary	inition study.
Economics of small solar power plants -	in rural	[ NASA-CR-160442]	25 p0167 N80-15195
areas	000 100 1000	SATELLITE SOLAR POWER STATIONS	
Techno-economic feasibility analysis of	024 A80-12754	Enhanced power generation of GSS.	/4/PS by optical
cells with and without concentrators	for rural	solar reflectors Gravitatio	nally Stabilized
lighting		Solid-State-Satellite Solar-Por	
25 p00	026 A80-12773	Legal and political problems of s	25 p0038 A80-14948
RUTHENIUM COMPOUNDS  Hydrogen evolution from water using soli		stations in space	power
and light energy	ra Carbon	[IAF PAPER 79-IISL-03]	25 p0047 A80-17064
	032 A80-13109	Impacts of satellite power system	technology
	, ,,,,,	Cost effectiveness requirements f	25 p0048 A80-17132
S		stations	or shace homer
SAPETY			25 p0073 A80-18800
Liquefied gaseous fuels safety and envir	conmental	Weight optimization of ultra larg	e space structures
control assessment program	- Annen car	I DAWE PAPER 13011	25 maaga 100-20441
[DOE/EV-0036] 25 p0	151 N80-14266	The satellite power system concep [SAWE PAPER 1305]	
SAFETY FACTORS		Minimum cost transmitter-receiver	25 p0086 A80-20643 antenna pairs
Critical review and assessment of enviro	onmental	antenna design for the sate	llite solar nover
and safety problems in hydrogen energy [LA-7820-PR] 25 n01	7 systems 145 N80-13690	station using optimal control t	heory
23 po	13030	[RM-690]	25 p0094 N80-10414

SUBJECT INDEX SHALE OIL

Satellite Power System (SPS): A prospective organizational str	n overview of	SBBICONDUCTING FILMS	
solar satellite field [TID-29094]	<i>*</i>	Optical and electrical investiga indium oxide selective coating	s produced by
SATELLITE TEMPERATURE	25 p0154 N80-14478	spray pyrolysis	25 p0023 A80-12747
Cooling a radioisotope power sou: Shuttle Orbiter	rce in the Space	Solar absorption spectra of PbS- systems	Al and PbSe-Al
[ASME PAPER 79-ENAS-44] SCALE (RATIO)	25 p0C39 A80-15267	<u>-</u>	25 p0027 A80-12781
Effect of vertical scale distort		Calculated and measured efficien shallow-homojunction Gals sola	cies of thin-film r cells on Ge
temperature field of a thermal [PB-297274/3]	-hydraulic model 25 p0108 N80-11551	substrates	25 p0039 A80-15141
SCALING LAWS Influence of the scaling of plass	ma confinement on	SEMICOMDUCTOR DEVICES The semiconductor-insulator-semi	-
the economy and unit size of in reactors	gnited toroidal	tin oxide on silicon/ solar ce	11 -
	25 p0079 A80-19594	Characteristics and loss mecha	nisms 25 p0006 A80-11368
SCHOTTKY DIODES Role of oxide layer in Schottky	barrier solar cells	Some promising aspects regarding conversion with metal oxide ph	solar energy
Experimental study of MOS solar	25 p0025 A80-12761	·	25 p0011 A80-11853
concentration		Semiconductor alternating-curren energy conservation	
Effect of thin oxide layer on the	25 p0026 A80-12769 e current voltage	Photoelectrochemistry and hetero	25 p0034 A80-13861 geneous
relations of Schottky barrier s	solar cells 25 p0026 A80-12772	photocatalysis at semiconducto	
Experimental investigation of var metals for Schottky barrier and	rious barrier	The physics and chemistry of sol	ar cells
	25 p0C27 A80-12776	measurement techniques for high-	
Effect of image force on the char MOS solar cell	racteristics of	semiconductor materials and de application to energy technolog	vices:
Copper diffusion and photovoltaio	25 p0C28 A80-12785 c mechanisms at	[FB-298574/5] Photoelectrochemical conversion	25 p0121 N80-12300
Cu-CdS contact		to electricity and fuels	
Preparation and properties of	25 p0033 A80-13204	[AD-A072861] SEMICONDUCTOR JUNCTIONS	25 p0123 N80-12556
Au-/n/AlxGa1-xAs-/n/GaAs Schott cells	ky barrier solar	The A-I/1-y/B-I/y/C-IIID-VI/2x/E- pentenary alloy system and its	
Schottky barrier height, photovol	25 p0086 A80-20716	photovoltaic solar energy conve	ersion
photocurrent in liquid-junction	solar cells	Temperature dependence of open-c	25 p0046 A80-16786 ircuit
SCIENCE	25 p0087 A80-20723	<pre>photovoltage of a back-surface semiconductor junction</pre>	field
A link between science and applic automatic control; Proceedings		SEMICONDUCTORS (MATERIALS)	25 p0087 A80-20727
Triennial World Congress, Helsi June 12-16, 1978. Volumes 1, 2,	inki, Finland,	Theoretical consideration of cur-	e fill factor in
	25 p0038 A80-14794	solar cells	25 p0026 A80-12768
Calculation of the low-frequency	electromagnetic	Measurement techniques for high- semiconductor materials and de	
field of MHD machines encapsula screening shell	ated in a common	application to energy technolog	gies 25 p0121 N80-12300
SCRUBBERS	25 p0030 A80-12896	Materials for solar thermal conve [COO-4557-1]	ersion
Fiscal year 1978 experiences at 1 unit 8 limestone scrubber	CVA's Widows Creek	SENEGAL	25 p0143 N80-13670
[ASME PAPER 79-WA/APC-10]	25 p0071 A80-18623	Solar energy commercialization for [HCF/CS-2522]	or African countries 25 p0127 N80-12591
Hot gas cleanup [ICTIS/TR-03]	25 p0117 N80-11647	SERVICES Baltimore applications project	,
SEA WATER On the basic dynamics of extracti		[ NASA-TH-80577 ]	25 p0133 N80-12957
	25 p0 038 A80-14837	SEWAGE TREATMENT Simulation of solar-assisted urba	
OIEC - Solar energy from the sea	25 p0085 A80-20424	[ASME PAPER 79-WA/SOL-36] Characterization of solid-waste o	25 r0065 A80-18556 conversion and
SEALS (STOPPERS) Novel ceramic receiver for solar	Brayton systems	cogeneration systems [LBL-7883]	25 p0141 N80-13648
[COO-4878-3] SEASAT OCEAN DYNAMICS SATELLITE	25 p0146 N80-13694	SHADOWS	
SEASAT demonstration experiments oil, gas and mining industries	with the offshore	Algorithm for calculating the sha of the heliostats of a solar el	ectric power plant
[NASA-CR-162423]	25 p0108 N80-11532	A method of estimating monthly as	25 p0051 A80-17246 verage solar
SEDIMENTS The distribution of sulfur and or	qanic matter in	radiation on shaded receivers	25 p0060 A80-18123
<pre>various fractions of peat - Ori coal</pre>		SHALE OIL	_
	25 p0074 A80-18833	Optimal oil yield from in situ oi	25 p0038 A80-14795
Heat flow and heat transfer condi bottom sediments of the equator	ial Indian Ocean	Geology of the Athabasca oil sand	ls 25 p0050 A80-17236
The analysis of sediment samples	25 p0075 A80-19048 for hydrocarbons	The use of oil shale for SO2 emis atmospheric-pressure fluidized-	sion control in
[AD-A073822] SBISHIC WAVES	25 p0149 N80-13754		25 p0064 A80-18505
Seismic refraction investigation	of the Salton Sea	Properties of gases and petroleum from terrestrial kerogen at war	ious maturation
geothermal area, Imperial Walle [PB-296547/3]	v. Calitornia	levels	
	25 p0118 N80-11711	207025	25 p0073 ARG-18832
SEISMOLOGY Development of in situ marine sei	25 p0118 N80-11711	Prospects for the near-term comme	25 p0073 A80-18832 rcialization of
Development of in situ marine sei geotechnical instrumentation sy [SAND-79-0868C]	25 p0118 N80-11711 smic and		25 p0073 A80-18832 rcialization of 25 p0078 A80-19474

The challenge of efficiently retorting very nonuniform beds of oil shale rubble 25 p0085 A80-20453	SILICOM CARBIDES  Evaluation of sintered SiC as an electrode and  container material in sodium/sulfur cells
Adsorption of hydrogen sulfide in shale retorted	25 p0035 A80-14588
in an inert atmosphere 25 p0085 A80-20454	On-line tests of organic additives for the
Mineral changes during oil shale retorting 25 p0085 A80-20455	inhibition of the precipitation of silica from hypersaline geothermal brine. 2: Tests of
Alternative jet aircraft fuels 25 p0091 N80-10209	nitrogen-containing compounds, silanes, and additional ethoxylated compounds
Overview of in situ oil shale technology and recent advances in true in situ retort modeling	[UCID-18195] 25 p0110 H80-11567 SILICON FILMS
[SAND-78-2367C] 25 p0122 N80-12543 Shale oil: US and world resources and prospects for near-term commercialization in the United	Stabilized CVD amorphous silicon for high temperature photothermal solar energy conversion 25 p0087 &80-20722
States [ORAD/IPA-79-8(R)] 25 p0122 M80-12544	SILICON JUNCTIONS The semiconductor-insulator-semiconductor /indium
Environmental analysis of synthetic liquid fuels  shale oil, ccal liquefaction, and biomass	tin oxide on silicon/ solar cell - Characteristics and loss mechanisms
production of ethanol [DOE/EV-0044] 25 p0134 N80-13279	25 p0006 A80-11368 Performance of silicon solar cells in front of a
Critique of the meteorological and air quality baseline monitoring program for the prototype	water absorber 25 p0019 A80-12125
oil shale leaseholds. Part A: Comments on the approach taken and recommendations for	Development of space quality silicon solar cells at B.A.R.C. 25 p0025 A80-12762
continuing program. Part B: Comments on the data acquisition and management [DOP/PV-70031/4-PT-A/E] 25 p0148 N80-13723	Some experimental studies on the technical developments of low cost silicon solar cells
[DOE/EV-70031/4-PT-A/E] 25 p0148 N80-13723 Microbial deterioration of hydrocarbon fuels from oil shale, coal, and petroleum. 1: Exploratory	25 p0028 A80-12789 Efficient indium tin oxide/polycrystalline silicon
experiments [AD-A073761] 25 p0150 N80-14259	solar cells 25 p0039 A80-15136
Energy from the West: Energy resource development systems report. Volume 3: Oil shale	Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region
[PB-299179/2] 25 p0152 N80-14465 Surface water quality parameters for monitoring	25 p0044 A80-16626 Photoelectric parameters of photoelectric
oil shale development [PB-297984/7] 25 p0153 N80-14470	converters in relation to illumination 25 p0044 A80-16627
Devonian paleocurrents of the Applachian basin	Analysis of the optical characteristics of silicon photoelectric converters with bilateral sensitivity
gas production [METC/CR-79/22] 25 p0149 N80-13735 Coal-shale interface detection system	25 p0044 A80-16628 SILICON NITRIDES
[NASA-CASE-MFS-23720-2] 25 p0152 N80-14423 SHELL STABILITY	Sintered silicon nitrode recuperator fabrication [NASA-CR-159706] 25 p0167 N80-15263
Stability of a system of coaxial superconducting shells	SILVER HYDROGER BATTERIES Development of silver-hydrogen cells
25 p0018 A80-12027 SHOCK HEATING	25 p0010 A80-11843 Development of silver-hydrogen cells
Principles of plasma heating and confinement in a compact toroidal configuration	25 p0010 A80-11844 SIMULATION Modeling and simulation. Volume 10 - Proceedings
25 p0055 A80-17822 SHOCK WAVE INTERACTION Optimization of argon admixture in deuterium	of the Tenth Annual Pittsburgh Conference, University of Pittsburgh, Pittsburgh, Pa., April
fusion with non-stationary action of plane shock waves	25-27, 1979. Part 2 - Systems and control 25 p0087 A80-20862 SINGLE CHYSTALS
SHORT TAKEOFF AIRCRAFT 25 p0007 A80-11546	Review of the work done at C.E.E.B.I. on the
<pre>Fuel minimal take-off path of jet lift VICL aircraft, log no. C3558</pre>	development of single crystal silicon solar cells for use with concentrated light
SHROUDED PROPELLERS 25 p01C5 N80-11066	25 p0027 A80-12777 SINTERING
Experimental demonstration of the diffuser-augmented wind turbine concept	Improvement of the high-rate discharge behaviour of the nickel electrode
25 p0007 A80-11643 Electricity generation from jet-stream winds	25 p0010 A80-11841 SITES Applications analysis of fixed site hydrogen storage
25 p0007 A80-11644 SIGNAL DETECTORS Coal-shale interface detection system	[SAND-78-8272] 25 p0092 %80-10384 Evaluation of nuclear power plant siting by
[NASA-CASE-MFS-23720-2] 25 p0152 N80-14423 SILICON	probabilistic assessment of environmental impact [VIT-EN-24] 25 p0118 N80-11891
Textured silicon - A selective absorber for solar thermal conversion	Simulation approach for base-line energy-siting analysis
25 p0034 A80-13980 Silicon solar cell process development,	[CONF-790459-22] 25 p0157 N80-14511 SIZE (DIMERSIONS)
fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561	Study of heat-pipe heat exchanger in the small gas turbine engine system 25 p0091 N80-10022
Low cost solar cells based on amorphous silicon electrodeposited from organic solvents	SIZE DETERMINATION  The influence of thermophysical properties on the
[SAN-0113-T3] 25 p0145 N80-13678 Silicon materials outlook study for 1980-1985 calendar years	design and sizing of geothermal power plant components
[NASA-CR-162541] 25 p0155 N80-14492 Analysis of GaAs and Si solar cell arrays for	[ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593 Realistic sizing of residential solar heating and
earth orbital and orbit transfer missions [NASA-TM-81383] 25 p0167 N80-15204	cooling systems [COO-2858-14] 25 p0163 N80-14569
Design and performance of silicon solar cells under concentrated sunlight [SAND-79-1165C] 25 p0172 N80-15577	
[SAND-79-1165C] 25 p01/2 N80-155//	

SKIH (STRUCTURAL MEMBER)
Addition of solar air heaters to a pre-engineered
metal building
[ASME PAPER 79-WA/SOL-33] 25 p0066 A80-18566
SLICING
Assessment of present state-of-the-art sawing
technology of large diameter ingots for solar
sheet material
[ NA SA-CR-162535 ] 25 p0 151 N80-14273 SLOPES
An average slope factor for solar insolation
[ASME PAPER 79-WA/SOL-41] 25 p0067 A80-18572
SOCIAL PACTORS
Back to the central city - Myths and realities
in the desired of the same realities
25 p0002 A80-10323
A policy-sensitive model of technology assessment
25 p0004 A80-11140
Ocean thermal energy conversion /OTEC/ - Social
and environmental issues
25 p0049 A80-17135
Satellite Boyer System (Sps)
Satellite Power System (SPS) preliminary societal
assessment
[HCP/R4024-01/14] 25 p0101 N80-10657
Socioeconomic data requirements for environmental
assessment: Coal gasification and liquefaction
projects
Distribution and classification of local
socio-economic impacts from energy development
[CONF-790481-1] 25 p0166 N80-14954
SODIUM REACTOR EXPERIMENT
Materials compatibility in liquid sodium
[HEDL-SA-1559] 25 p0119 N80-12147 Pluid Dynamics of Porous Media in Energy
trait by matters of Forous needla in Energy
Applications, volume 2 [VKI-LEC-SER-1979-4-VOL-2] 25 p0121 N80-12346
[VKI-LEC-SER-1979-4-VOL-2] 25 p0121 N80-12346
SODIUM SULFUR BATTERIES
Computer modelling of electrically parallel arrays
of sodium-sulphur cells
25 p0013 A80-11865
Some aspects of sodium-sulphur batteries
25 p0013 A80-11866
Current collectors for sodium-sulphur batteries
25 p0013 A80-11867
Development of a sodium/sulphur battery for rail
applications
applications 25 p0031 A80~13003
applications 25 p0031 A80-13003 Evaluation of sintered SiC as an electrode and
applications 25 p0031 A80-13003 Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10] 25 p0067 A80-18569  SOLAE ARRAYS
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10] 25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10] 25 p0067 A80-18569  SOLAE ARRAYS
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10] 25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASHE PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells 25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10] 25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells 25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ABRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ABRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boilet/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  Color graphic controls for the solar central receiver test facility  Performance of solid compound parabolic concentrators in series  25 p0022 A80-12626  Power loss in photovoltaic arrays due to mismatch in cell characteristics
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ABRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boilet/receiver for solar energy conversion [ASHE PAPER 79-Wa/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells 25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  Color graphic controls for the solar central receiver test facility  Performance of solid compound parabolic concentrators in series  25 p0022 A80-12626  Pender loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-18569  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  Optimization of multi-layer front-contact grid patterns for solar cells  Evaluation of conductor mass and necessary voltage
applications  25 p0031 A80-13003 Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-18569  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  Optimization of multi-layer front-contact grid patterns for solar cells  Evaluation of conductor mass and necessary voltage
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boilet/receiver for solar energy conversion [ASHE PAPER 79-Wa/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  25 p028 A80-12816  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells 25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  Color graphic controls for the solar central receiver test facility  Performance of solid compound parabolic concentrators in series  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  25 p0028 A80-12816  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boilet/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  Enhanced power generation of GSS/4/PS by optical
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0002 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  25 p0028 A80-12816  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  25 p0036 A80-14595  Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAH ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  Color graphic controls for the solar central receiver test facility  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  25 p0036 A80-14595  Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station
applications  25 p0031 A80-13003 Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  Enhanced power generation of GSS/4PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station  25 p0038 A80-14948
applications  25 p0031 A80-13003 Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  Enhanced power generation of GSS/4PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station  25 p0038 A80-14948
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  25 p0028 A80-12816  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  25 p0036 A80-14595  Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station  25 p0038 A80-14948  SHADE - A computer model for evaluating the
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUN VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  Color graphic controls for the solar central receiver test facility  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station  25 p0038 A80-14948  SHADE - A computer model for evaluating the optical performance of two-axis tracking
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  Optimization of multi-layer front-contact grid patterns for solar cells  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station  25 p0038 A80-14948  SHADE - A computer model for evaluating the optical performance of two-axis tracking parabolic concentrators
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  25 p0028 A80-12816  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  25 p0036 A80-14595  Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station  25 p0038 A80-14948  SHADE - A computer model for evaluating the optical performance of two-axis tracking parabolic concentrators  [ASME PAPER 79-WA/SOL-131]  25 p0068 A80-18581
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  Color graphic controls for the solar central receiver test facility  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  25 p0028 A80-12816  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station  25 p0038 A80-14948  SHADE - A computer model for evaluating the optical performance of two-axis tracking parabolic concentrators  [ASME PAPER 79-NA/SOL-13]  25 p0068 A80-18581  The satellite power system concept and program
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boilet/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station  25 p0038 A80-14948  SHADE - A computer model for evaluating the optical performance of two-axis tracking parabolic concentrators  [ASME PAPER 79-WA/SOL-13]  25 p0086 A80-18581  The satellite power system concept and program [SAWE PAPER 1305]  25 p0086 A80-20643
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boilet/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station  25 p0038 A80-14948  SHADE - A computer model for evaluating the optical performance of two-axis tracking parabolic concentrators  [ASME PAPER 79-WA/SOL-13]  25 p0086 A80-18581  The satellite power system concept and program [SAWE PAPER 1305]  25 p0086 A80-20643
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  25 p0028 A80-12816  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  25 p0036 A80-14595  Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station  25 p0038 A80-14948  SHADE - A computer model for evaluating the optical performance of two-axis tracking parabolic concentrators  [ASME PAPER 79-WA/SOL-13]  The satellite power system concept and program  [SAME PAPER 1305]  Materials testing for central receiver
Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUN VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  Color graphic controls for the solar central receiver test facility  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  25 p0028 A80-12816  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station  25 p0036 A80-14948  SHADE - A computer model for evaluating the optical performance of two-axis tracking parabolic concentrators  [ASME PAPER 79-WA/SOL-13]  25 p0068 A80-20643  Materials testing for central receiver solar-thermal power systems
applications  25 p0031 A80-13003  Evaluation of sintered SiC as an electrode and container material in sodium/sulfur cells  25 p0035 A80-14588  SODIUM VAPOR  The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-WA/SOL-10]  25 p0067 A80-18569  SOLAE ARRAYS  Theory of the direct coupling between D.C. motors and photovoltaic solar arrays  25 p0005 A80-11334  Color graphic controls for the solar central receiver test facility  25 p0022 A80-12626  Performance of solid compound parabolic concentrators in series  25 p0024 A80-12749  Power loss in photovoltaic arrays due to mismatch in cell characteristics  25 p0028 A80-12815  Optimization of multi-layer front-contact grid patterns for solar cells  25 p0028 A80-12816  Evaluation of conductor mass and necessary voltage level for large satellite solar arrays  25 p0036 A80-14595  Enhanced power generation of GSS/4/PS by optical solar reflectors Gravitationally Stabilized Solid-State-Satellite Solar-Power Station  25 p0038 A80-14948  SHADE - A computer model for evaluating the optical performance of two-axis tracking parabolic concentrators  [ASME PAPER 79-WA/SOL-13]  The satellite power system concept and program  [SAME PAPER 1305]  Materials testing for central receiver

silicon solar array project, phase 2

25 p0109 N80-11562

[ NASA-CR-162429 ]

```
Phase 2 of the array automated assembly task for
the low cost silicon solar array project
[NASA-CE-162426] 25 p0110 N80-11565
SANICS: Input data preparation --- Solar Array
       Manufacturing Industry Costing Standards
       [ NASA-CR-162421 ]
                                                25 p0110 N80-11570
    Solar parabolic trough forming process
    [ALO-4158-1] 25 p0116 M80-11626
Classification and technical review of dc-ac
      inverters for use in photovoltaic power systems
[CGO-4094-25] 25 p0137 N80-13377
    [CCO-4094-25]
PEP solar array definition study
[NASA-CB-160398]
                                                25 p0138 N80-13622
    Photovoltaic systems. Program summary
[DDF/ET-0019/2] 25 p
                                               25 p0146 N80-13691
    Assessment of present state-of-the-art sawing technology of large diameter ingots for solar
      sheet material
      [NASA-CR-162535]
                                                25 p0151 N80-14273
    Nethod for forming a solar array strip
[NASA-CASE-NPO-13652-3] 25 p0153 N80-14474
Residential photovoltaic module and array
    requirements study, appendices
[NASA-CR-162529] 25 p0154
Residential photovoltaic module and array
                                                25 p0154 N80-14481
      requirements study
      [NASA-CR-162528]
                                               25 p0154 N80-14482
    Development of an accelerated test design for
      predicting the service life of the solar array
      at Mead, Nebraska
[NASA-CR-162534]
                                                25 p0154 N80-14483
   [NASA-CR-102334]
Ohio exposition center solar home project
[PB-298541/4] 25 p0164 N80-14577
    Analysis of GaAs and Si solar cell arrays for
      earth orbital and orbit transfer missions
      [NASA-TM-81383]
                                               25 p0167 N80-15204
SOLAR CELLS
   Theory of the direct coupling between D.C. motors and photovoltaic solar arrays
                                               25 p0005 A80-11334
   The optimal design of solar cell grid lines
                                               25 p0005 A80-11335
   Concentration ratio and efficiency in
      thermophotovoltaics
                                               25 p0005 A80-11336
   The semiconductor-insulator-semiconductor /indium
      tin oxide on silicon/ solar cell - Characteristics and loss mechanisms
                                               25 p0006 A80-11368
   Solar panels exposed to cosmic rays
                                               25 p0008 A80-11825
   Improvements in the performance of a low cost thin
      film solar cell
                                               25 p0018 A80-11989
   Performance of silicon solar cells in front of a
      water absorber
                                               25 p0019 A80-12125
   Studies of photogalvanic cells
                                               25 p0023 A80-12743
   Programme and progress of DST sponsored solar
      photovoltaic work in India
                                               25 p0025 A80-12760
   Role of oxide layer in Schottky barrier solar cells
25 p0025 A80-12761
   Development of space quality silicon solar cells
      at B.A.B.C.
                                               25 p0025 A80-12762
   A theoretical method for estimation of power loss due to mismatch in solar cell I-V characteristics
                                               25 p0025 A80-12763
   Effect of concentrated sunlight on the various parameters of the p-n junction solar cell
                                               25 p0025 A80-12764
  Cadmium telluride solar cells
                                               25 p0026 A80-12765
   Performance studies on uniform illumination type
     nontracking concentrators
                                               ·25 p0026 A80-12766
   Theoretical consideration of curve fill factor in
                                               25 p0026 A80-12768
   Experimental study of MOS solar cells under
```

25 p0026 A80-12769 Annealing and degradation studies of ceramic CdS

concentration

solar cells

25 p0026 A80-12771

SOLAR COLLECTORS SUBJECT INDEX

Effect of thin oxide layer on the current voltage	The physics and chemistry of solar cells
relations of Schottky barrier solar cells 25 p0026 A80-12772	25 p0073 A80-18751 Synthetic molecular organizates
Techno-economic feasibility analysis of solar cells with and without concentrators for rural	25 p0073 A80-18752 Solar cells in practice 25 p0083 A80-19844
lighting 25 p0026 A80-12773 GaAs-electrolyte photovoltaic cells	The effect of fluorescent wavelength shifting on solar cell spectral response
25 p0026 A80-12774	25 p0086 A80-20715 Preparation and properties of
Reliability studies on thin film solar cells for satellite application 25 p0027 A80-12775	Au-/n/AlxGa1-xAs-/n/GaAs Schottky barrier solar cells
Experimental investigation of various barrier metals for Schottky barrier and MOS solar cells 25 p0027 A80-12776	25 p0086 A80-20716 Measurements of minority-carrier diffusion length in heterojunction solar cells
Review of the work done at C.E.E.R.I. on the development of single crystal silicon solar cells for use with concentrated light	25 p0086 A80-20717 Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells
25 p0027 A80-12777  Design and development of a 100 peak watt photovoltaic concentrator system	25 p0087 A80-20723  Temperature dependence of open-circuit  photovoltage of a back-surface field  semiconductor junction
25 p0027 A80-12778 Effect of image force on the characteristics of	25 p0087 A80-20727
MOS solar cell 25 p0028 A80-12785	Analysis and evaluation of isotype heterojunction solar cells
Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution	25 p0087 A80-20734 Computer analysis of grids currently used for
25 p0028 A80-12788 Some experimental studies on the technical	CdS/Cu2S solar cells 25 p0089 A80-20893
developments of low cost silicon solar cells 25 p0028 A80-12789	Analytical evaluation of a solar thermophotovoltaic (TFV) converter
Optimization of multi-layer front-contact grid patterns for solar cells	[SAND-79-0504C] 25 p0099 N80-10638 Silicon solar cell process development,
25 p0028 A80-12816	fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561
Efficient shallow-homojunction GaAs solar cells by molecular beam epitaxy	Electron radiation damage of (AlGa) As-GaAs solar
25 p0035 A80-13986 Thermodynamic analysis of thermomechanical solar	cells [NASA-CR-162425] 25 p0110 N80-11564
energy converters operating in conjunction with solar cells	Satellite Power Systems (SPS) concept definition study. Volume 4: SPS point design definition
25 p0035 A80-14592 High-voltage multijunction solar cell 25 p0035 A80-14593	[NASA-CR-150683] 25 p0119 N80-12106 Theoretical analysis of multi-cell, high efficiency broad spectral sensitivity solar cells
Solar cell spectral response characterization	25 p0138 N80-13617 Novel concentrator photovoltaic converter system
25 p0037 A80-14685 Application of solar and fuel cell technology to industrial users	development [SAND-79-7040] 25 p0143 N80-13661
25 p0037 A80-14707 Efficient indium tin oxide/polycrystalline silicon solar cells	Low cost solar cells based on amorphous silicon electrodeposited from organic solvents [SAN-0113-T3] 25 p0145 N80-13678
25 p0039 A80-15136	Silicon concentrator solar cell manufacturing
Calculated and measured efficiencies of thin-film shallow-homojunction GaAs solar cells on Ge	development [SAND-79-7021] 25 p0 146 N80-13697
substrates 25 p0039 180-15141	Self-reconfiguring solar cell system [NASA-CASE-LEH-12586-1] 25 p0153 N80-14472
Photoconverter with bilateral sensitivity 25 p0044 A80-16625	Photovoltaic incentives options [HCF/CS-0023] 25 p0162 N80-14561
Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region	Analysis of GaAs and Si solar cell arrays for earth orbital and orbit transfer missions
25 p0044 A80-16626 Photoelectric parameters of photoelectric	[NASA-TM-81383] 25 p0167 N80-15204 Space solar cells: High efficiency and radiation
converters in relation to illumination 25 p0044 A80-16627	damage [NASA-TH-61367] 25 p0170 N80-15554
Analysis of the optical characteristics of silicon photoelectric converters with bilateral	Characterization of three types of silicon solar cells for SEPS deep space missions. Volume 1:
sensitivity 25 p0044 A80-16628	Current-voltage characteristics of OCLI BSF/BSR 10 ohm-cm, and BSR 2 ohm-cm cells as a function
A theoretical evaluation and optimization of the radiation resistance of gallium arsenide	of temperature and intensity [NASA-TM-78253] 25 p0171 N80-15562
solar-cell structures 25 p0046 A80-16794	A survey of photovoltaic systems [NASA-CR-150696] 25 p0171 N80-15563
AlGaAs tunnel diode 25 p0046 A80-16799	Design and performance of silicon solar cells under concentrated sunlight
The ampere-hour efficiency of photovoltaic solar qenerators	[SAND-79-1165C] 25 p0 172 N80-15577 SOLAR COLLECTORS
25 p0047 A80-16999 Photovoltaic solar cell array used for	A new approach to low cost large area selective surfaces for photothermal conversion
supplemental power generation 25 p0061 A80-18129	25 p0003 A80-10845 Performance of an inexpensive constant flow solar
Power conversion efficiency monitoring in photoelectrochemical and other solar cells	collector/storage system in ground 25 p0003 A80-10846
25 p0062 A80-18214 Relating computer simulation studies with	Using a fin with a parabolic concentrator 25 p0004 A80-10847
interface state measurements on MIS sclar cells 25 p0062 A80-18231	The effects of axial conduction on collector heat removal factor
Thermal energy utilization in the Mississippi County Community College Photovoltaic Project	25 p0004 A80-11333 A theoretical study of laminar free convection in
[ASME PAPER 79-WA/SOL-29] 25 p0068 A80-18575	1-D solar induced flows 25 p0005 A80-11337

Derivation of method for predicting long term average energy delivery of solar collectors Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors Economy of a retrofit solar system --water heating 25 p0017 A80-11984 Commercial building and industrial applications for solar energy 25 p0017 A80-11985 Near-term prospects for solar industrial process 25 p0018 A80-11988 Materials resource requirements and potential limitations in solar energy products 25 p0018 A80-11990 Computers in the design of solar energy systems 25 p0020 A80-12426
A high performance porous flat-plate solar collector
25 p0021 A80-12438 Modeling of a thermal wall panel using phase change materials 25 p0021 A80-12439 Heliostat Beam Characterization System --computerized wideo radiometer technique for solar collector 25 p0022 A80-12627 Effect of boosters on the performance of flat plate collector 25 p0023 A80-12744 Solar energy flat plate collectors - Optimization of air gap 25 p0023 A80-12745 Transient rise of plate temperature in solar collectors 25 p0023 A80-12746 An investigation of experimental performance of a compound parabolic concentrator 25 p0023 A80-12748 Performance of solid compound parabolic concentrators in series 25 p0024 A80-12749 A seasonally adjusted concentrating collector made of mirror strips 25 p0024 A80-12750 A parametric study of solar thermal power plant 25 p0024 A80-12753 Economics of small solar power plants --- in rural 25 p0C24 A80-12754 Performance studies on uniform illumination type nontracking concentrators 25 p0026 A80-12766 Techno-economic feasibility analysis of solar cells with and without concentrators for rural lighting 25 p0026 A80-12773 Review of the work done at C.E.E.R.I. on the development of single crystal silicon solar cells for use with concentrated light 25 p0027 A80-12777 Solar absorption spectra of PbS-Al and PbSe-Al systems 25 p0027 A80-12781 An electronic device for intermittent tracking --of sun in solar collectors 25 p0027 A80-12782 Solar concentrator with polyester film for reflecting surface and pendulum arrangement for tracking movement 25 p0027 A80-12784 Calculation of monthly mean solar radiation for horizontal and inclined surfaces 25 p0028 A80-12817 Calculation of climatic solar heating performance 25 p0029 A80-12820 An experimental study of corrugated steel sheet 25 p0029 A80-12822 Truncation of nonimaging cusp concentrators --solar collector geometry

Plat-plate solar collector materials

Solar collectors as energy converters

25 p0C29 A80-12824

25 p0035 A80-14409

25 p0036 A80-14670

Influence of the working fluid on heat transfer and layout of solar tower receivers Heat and electricity from the sun using parabolic dish collector systems 25 p0037 A80-14706 Calculation of steam generation with parabolic solar collectors 25 p0039 A80-15328 A solar-heated water system for a photographic processing laboratory 25 p0041 A80-15750 Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629 On a calculation procedure for a heat accumulator in a solar heating system 25 p0044 A80-16630 Brightness distribution over the solar disk --- in solar reflectors 25 p0050 A80-17243 A method of estimating monthly average solar radiation on shaded receivers 25 p0060 A80-18123 High temperature solar collector with optimal concentration - Non-focusing Fresnel lens with secondary concentrator 25 p0060 A80-18127 A simplified technique for comparing the effectiveness of collector absorber coatings 25 p0061 A80-18133 Advanced solar thermal receiver technology
[AIAA PAPER 80-0292] 25 p0063 A80-18297
Performance characteristics of point-focusing distributed-receiver solar Brayton systems
[AIAA PAPER 80-0293] 25 p0063 A80-18298
Use of adjustable flat mirrors with flat-plate collectors
[AIAA PAPER 80-0294]

Optimization of a point-focusing, distributed receiver solar thermal electric system
[ASME PAPER 79-WA/SOL-11]

ASME PAPER 79-WA/SOL-11]

25 p0065 A80-18553

Clar-powered liquid-metal MHD power systems
[ASME PAPER 79-WA/SOL-22]

Utilization of heavy fill gases in annular solar receiver geometries for heat lcss reduction
[ASME PAPER 79-WA/SOL-18]

Beat transfer analysis of receivers for a solar concentrating collector
[ASME PAPER 79-WA/SOL-20]

25 p0065 A80-18558 collectors [ASME PAPER 79-WA/SOL-20] 25 p0065 A80-18558 Computer simulation results for planar reflectors and flat plate solar collectors [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18
A solar energy system with annual aquifer storage
[ASME PAPER 79-WA/SOL-30] 25 p0066 A80-18 25 p0066 A80-18559 [ASME PAPER 79-WA/SOL-30] 25 p0066 A80-18560 Helium penetration in evacuated solar collectors -Theory and effect on their performance [ASME PAPER 79-WA/SOL-17] 25 p00 25 p0066 A80-18563 Comparative study of solar optics for paraboloidal concentrators [ASME PAPER 79-WA/SOL-8] 25 p0066 A80-18 Addition of solar air heaters to a pre-engineered 25 p0066 A80-18564 metal building [ASME PAPER 79-WA/SOL-33] 25 p0066 A80-18566 Superheated steam generation in a Fresnel lens concentrating collector [ASME PAPER 79-WA/SOL-21] 25 p0067 A80 [ASME PAPER 79-WA/SOL-21] 25 p0067 A80-18567 Design, evaluation, and testing of a moderately concentrating, non-tracking solar energy collector [ASHE PAPER 79-WA/SOL-3] 25 p0067 A80-18570 a average slope factor for solar insolation
[ASME PAPER 79-WA/SOL-41] 25 p0067 A80-18572 Noniterative solution of heat transfer equation of fluid flow in solar collector [ASME PAPER 79-WA/SOL-24] 25 p0068 A80-185 25 p0068 A80-18577 An optimization formulation for solar hot water systems [ASME PAPER 79-WA/SOL-42] 25 p0068 A80-18578 A design method for optimizing collector systems for small solar center receivers
[ASME PAPER 79-WA/SOL-14] 25 p0068
SHADE - A computer model for evaluating the optical performance of two-axis tracking 25 p0068 480-18580 parabolic concentrators
[ASME PAPER 79-WA/SOL-13] 25 p0068 A80-185
Analysis of convective heat loss from the receiver 25 p0068 A80-18581

of solar power plants
[ASME PAPER 79-WA/HT-36]

25 p0068 A80-18582

Circumsolar radiation data for central receiver

[LBL-8371] 25 p0131 M80-12647 Linear concentration solar collector in an air

simulation

A	comparison of test results for	flat-plate
	water-heating solar collectors	using the BSE and
	ASHBAE procedures	25 -0000 100 10505
_	[ASHE PAPER 79-WA/SOL-4]	25 p0C69 A80-18585
Яe	sidential solar heat pump system	ems - Inermar and
	economic performance	25 p007C A80-18591
ъ.	[ASME PAPER 79-WA/SOL-25] esign of the International Ener-	23 poort 200-10331
μe	distributed-collector solar the	gy Agency 300 kme
		efmai-electic
	powerplant	25 p0070 A80-18592
٠.	[ASME PAPER 79-WA/SOL-6] lar thermal central receiver s	75 POUTO BOU-10332
30	fichs bibss 70-mi/mm-201	25 p0070 A80-18596
٠.	[ASME PAPER 79-WA/HT-38] Dar concentrators using vacuum	
31	surfaces for tracking	Concount
	[AIAA PAPER 80-0399]	25 p0077 A80-19326
٠,	olar enhanced oil recovery - An	
30	economic feasibility	ubblobbacat 01
	economic reasinging	25 p0078 A80-19472
т.	proved planar solar convertor	
	neodymium and holmium glasses	20200 02 020-7-
	Repulming and norman 3-appear	25 p0C83 A80-19740
C:	wity enhancement by controlled	directional
٠.	scattering in solar collec	tors
		25 p0C83 A80-19955
N a	ew concept for a system suitabl	
	simulation	
		25 p0083 A80-19976
C	oatings for enhanced phototherm	
•	collection. II - Non-selective	
	control films	
		25 p0086 A80-20714
C	obalt oxide as a spectrally sel	
	for use in solar collectors	
		25 p0086 A80-20719
A	n applications analysis for the	solar industrial
	process heat market	
	-	25 p0088 A80-20888
0	ptimal control of distributed p	arameter systems
	for solar thermal applications	•
		25 p0095 N80-10593
T	he 10MW(e) solar thermal centra	ıl receiver pilot
	plant: Heliostat foundation a	ind interface
	structure investigation	
	[SAND-78-8180]	25 p0097 N80-10612
М	DAC/Rocketdyne solar receiver:	Design review
	[SAND-78-8188]	25 p0097 N80-10616
G	raphical representation of TMY	
	availability for one- and two-	-axis solar
•	collectors	25 p010C N80-10640
_	[SAND-79-0418]	
C	oncentrating solar collector to	
	Collector Module Test Facility	7 (CMTP) 25 p0111 N80-11580
ט	[SAND-78-0977] eat loss reduction techniques 1	
п	receiver designs	COL ABBUTAL SOLAL
	[SAND-78-1769]	25 p0111 N80-11581
ъ	esign considerations for a prop	nosed passive
ע	vacuum solar annular receiver	hanna bannase
	[SAND-78-0982]	25 p0111 N80-11582
c	pectrally selective surfaces wi	
.,	comprised of ultrafine metal	particles solar
	collectors	
	[AED-CONF-78-212-004]	25 p0115 N80-11620
S	olar parabolic trough forming	
_	[ALO-4158-1]	25 p0116 N80-11626
F	luid Dynamics of Porous Media :	in Enerav
-	Applications, volume 1 her	at storage and
	transfer in solar energy conve	ersion systems
	[VKI-LEC-SER-1979-4-VOL-1]	25 p0121 N80-12338
H	eat storage and thermal transfe	er aspects of the
	dynamic behaviour of a packed	bed
	-	25 p0121 N80-12342
F	luid Dynamics of Porous Media :	
	Applications, volume 2	
	[ VKI-LEC-SER-1979-4-VOL-2 ]	25 p0121 N80-12346
A	pplication of packed beds to e	nergy storage use
	of latent heat of fusion	
		25 p0121 N80-12353
O	ptimization of photovoltaic/the	ermal collector
	heat pump systems	25 -0424 -22 42511
_	[C00-4577-7]	25 p0124 N80-12566
I	ouble-exposure collector syste	D 25 -0127 N00-12502
_	[TID-28964]	25 p0127 N80-12593
5	study of corrosion and its cont	TOT IU SIDMIDUM
	solar collectors [COC-2934-7]	25 p0129 N80-12609

```
Supported enclosure. Preliminary design study
[SAND-78-7022] 25 p0141 880-13644
Performance testing of the General Electric
Engineering Prototype Collector
[SAND-79-0514] 25 p0141 880-13645
   Evaluation of combined photovoltaic/thermal
     collectors
      [CCO-4577-8]
                                                  25 p0143 N80-13665
   Experimental and theoretical evaluatiom of a novel
      concentrating solar energy collection system
   [SAND-79-1053C] 25 p0144 N80-13671
Solar central receiver prototype beliostat CDRL
      item B.D., volume 1 [SAN-1605/7-VOL-1]
                                                  25 p0146 N80-13700
   Weight minimization of sandwich type solar
     collector panels [SAND-78-2305C]
                                                  25 p0147 N80-13710
   Solar concentrator
   [NASA-CASE-MPS-23727-1] 25 p0153 N80-14
Visualization of natural convection in flat plate
                                                  25 p0153 N80-14473
      solar collectors
                                                  25 p0153 N80-14476
   Thermal performance evaluation of the Suncatcher
   SH-11 (liquid) solar collector
[NASA-CR-161253] 25 p0156 N80-14
Results of thermal performance evaluation of the
                                                  25 p0156 N80-14497
      Owens-Illinois sunpack liquid solar collector at
      indoor conditions
      [NASA-CR-161189]
                                                  25 p0156 #80-14500
   Non-tracking inflated cylindrical solar concentrator [UCRL-82721] 25 p0159 N80-14528
   Thermal degradation of a black chrome solar
      selective absorber coating: Short term
   [LBI-8857] 25 p0161 m80-14549
Performance of residential solar heating and
      cooling system with flat-plate and evacuated tubular collectors: CSU solar house 1
   [COO-2577-16] 25 p0163 N80-14568
Realistic sizing of residential solar heating and
      cooling systems
      [COO-2858-14]
                                                  25 p0163 N80-14569
   Ohio exposition center solar home project
[PB-298541/4] 25 p0164 B80-14577
Corrosion protection of solar-collector heat
   exchangers with electrochemically deposited films [COO-4297-1] 25 p0171 N80-15569 Evaluation of the evacuated solar annular
      receivers used at the Midtemperature Solar
   Systems Test Pacility (MSSTP)
[SAND-78-0983] 25 p0173 N80-155
Analysis of field test results for
single-axis-tracking solar collector foundations
                                                   25 p0173 N80-15585
      [SAND-79-7023]
                                                   25 p0173 N80-15586
    Performance of residential solar heating and
      cooling system with flat-plate and evacuated
      tubular collectors: CSU Solar House 1
[COO-2577-17] 25 p01
                                                   25 p0176 N80-15616
SOLAR COOLING
    Commercial building and industrial applications
      for solar energy
                                                   25 p0017 A80-11985
    Solar cooling performance predictions via stochastic weather algorithms
                                                   25 D0020 A80-12430
    Validation methodology for solar heating and
      cooling systems
                                                   25 p0020 A80-12431
    Design of 1-ton solar operated LiBr-water air-conditioning system with special reference
       to solar part
                                                   25 p0025 A80-12759
    Experimental investigations of an intermittent
       ammonia-water solar refrigerator
                                                   25 p0028 A80-12786
    The analysis and simulation of an open cycle
       absorption refrigeration system
                                                   25 p0029 A80-12825
    Solar system with a hermetically and
       nonhermetically vitrified regenerative heater and its energetic indices
                                                   25 p0051 A80-17244
    Numerical computation of singular control problems with application to optimal heating and cooling
       by solar energy
                                                    25 p0051 A80-17307
```

SUBJECT INDEX SOLAR EMERGY

A new solar thermal electricity/cooling generation	SOLAR ELECTRIC PROPULSION
system	Characterization of three types of silicon solar
[AIAA PAPER 80-0296] 25 p0063 A80-18300	cells for SEPS deep space missions. Volume 1:
A simplified procedure for performance of solar	Current-voltage characteristics of CCLI BSF/BSR
systems with heat pumps	10 ohm-cm, and BSR 2 ohm-cm cells as a function
[ASBE PAPER 79-WA/SOL-23] 25 p0065 A80-18555	or temperature and intensity
A home-size solar-powered engine for cooling	[NASA-TM-78253] 25 p0171 N80-15562
systems of generation of electricity [ASME PAPER 79-WA/SOL-34] 25 p0066 A80-18562	SOLAR EBERGY
[ASME PAPER 79-WA/SOL-34] 25 p0066 A80-18562 Comparisons of measured and simulated performance	Some solar energy programmes in the United Nations
for CSU Solar House I	system
[ASHE PAPER 79-WA/SOL-35] 25 p007C A80-18590	25 p0006 A80-11342 A cheap method of improving the performance of
A study of the solar LiBr dual cycle characteristics	roof type solar stills
[AIAA PAPER 80-0400] 25 p0077 A80-19327	
Passive solar energy programs and plans	25 p0006 A80-11343 Economic performance - Evaluations for solar energy
[GPO-36-211] 25 p0095 N80-10599	25 p0014 A80-11956
Ocmulgee national monument visitor center solar	Calculation of monthly mean solar radiation for
heating and cooling system design review data	horizontal and inclined surfaces
[NASA-CR-150706] 25 p0096 N80-10601	25 p0028 A80-12817
Solar heating and cooling systems design and	The Coriolis program electric power from
development [NASA-CR-150618] 25 p0096 N80-10602	moored counterrotating turbine arrays in warm
[NASA-CR-150618] 25 p0096 N80-10602 Solar heating and cooling systems design and	water current
development	25 p0044 A80-16653
[NASA-CR-150873] 25 p0109 N80-11560	Biomass energy enhancement: A report to the
Energy storage for solar air conditioning	President's Council on Environmental Quality solar heat gasification
applications utilizing a form-stable, high	[PB-296624/0] 25 p0094 N80-10396
density polyethylene pellet bed	Methodology for identifying materials constraints
[MLH-2598(OP)] 25 p0113 N80-11603	to implementation of solar energy technologies
Energy savings for a solar heated and cooled	[PNL-2711] 25 p0098 N80-10625
building through adaptive optimal control	State of the art of sensible heat storage for
[LA-UR-78-2986] 25 p0115 N80-11616	solar heat pump systems
October 1978 environmental data for sites in the	[BNL-25909] 25 p0101 N80-10651
National Solar Data Network [SOLAR/0010-78-10] 25 p0126 N80-12585	Development of a high temperature solar powered
[SOLAR/0010-78-10] 25 p0126 N80-12585 Experimental test facility for evaluation of solar	water chiller. Volume 3: Phase 1
control strategies	[SAN-1590-1/3-VOL-3] 25 p0101 N80-10654
[LBL-8308] 25 p0126 N80-12586	Solar generation of industrial steam. Innovative research program subtask
Solar Heating And Cooling Of Buildings (SEACOB)	F 000 1514 07
Commercialization report. Part B: Analysis of	25 p0101 M80-10656 Performance monitoring of an off-peak heating and
market development, volume 2	cooling system utilizing thermal storage and
[DOE/TIC-10071] 25 p0128 N80-12603	solar augmented heat pump
Development and testing of the Junkeeper Control	[EPRI-ER-845] 25 p0102 N80-10662
Corporation integrated programmable electronic	Solar pond concepts: Old and new
controller and hydronics package	[SERI/TP-35-208] 25 p0102 N80-10663
[NASA-TM-78244] 25 p0155 N80-14495	Solar commercialization
Development and testing of the Rho Sigma Incorporated microprocessor control subsystem	[GPO-43-586] 25 p0109 N80-11556
[NASA-TM-78246] 25 p0 156 N80-14496	Solar heating and cooling systems design and
Development and testing of the Solar Control	development [NASA-CR-150873] 25 p0109 N80-11560
Corporation modular controller and Solarstat	[NASA-CR-1508/3] 25 p0109 N80-11560 Solar access law. Protecting access to sunlight
subsystem	for solar energy systems
[NASA-TM-78243] 25 p0156 N80-14498	[PB-296532/5] 25 p0117 N80-11633
Engineering concerns in solar system design and	Application of packed beds to energy storage use
operation	of latent heat of fusion
[SOLAR/0811-79/01] 25 p0160 N80-14539	25 p0121 N80-12353
Evlaution of performance enhancement of solar	Evaluation of solar Rankine-cycle engine systems
powered absorption chiller with an improved	[SAND-78-0986] 25 p0125 N80-12571
control strategy using the BNL-built hardware simulator	Solar mechanical energy storage project
[BNL-26218] 25 p0162 N80-14552	[SAND-78-1982C] 25 p0127 N80-12590
Hazardous properties and environmental effects of	Solar energy commercialization for African countries [HCP/CS-2522] 25 p0127 N80-12591
materials used in Solar Heating and Cooling	Project CESA-1, a 1 MW solar power plant in Almeria
(SHAC) technologies: Interim handbook	[AED-CONF-78-212-011] 25 p0130 N80-12614
[DOF/EV-0028] 25 p0163 N80-14565	Solar energy perspectives for public power
Performance of residential solar heating and	[SERI/TF-35-300] 25 p0 140 N80-13635
cooling system with flat-plate and evacuated	Energy planning with solar and conservations:
tubular collectors: CSU solar house 1	Individual values and community choice
[COO-2577-16] 25 p0163 N80-14568 Realistic sizing of residential solar heating and	[LA-UR-79-1599] 25 p0142 N80-13653
cooling systems	Trans-seasonal storage of solar energy:
[COO-2858-14] 25 p0163 N80-14569	Innovative research program subtask
National program plan for passive and hybrid solar	underground storage [COO-4546-3] 25 p0144 N80-13672
heating and cooling	Thermal performance evaluation of the Suncatcher
[DOE/CS-0089] 25 p0174 N80-15598	SH-11 (liquid) solar collector
Conference on performance monitoring techniques	[ NASA-CR-161253 ] 25 p0156 N80-14497
for evaluation of solar heating and cooling	Photosensitization mechanisms for energy storing
systems	isomerizations
[CONF-780432] 25 p0174 N80-15599	[AD-A074968] 25 p0156 N80-14502
Performance of residential solar heating and	Implementation of state solar incentives: Land-use
cooling system with flat-plate and evacuated tubular collectors: CSU Solar House 1	planning to ensure solar access
[COC-2577-17] 25 p0176 N80-15616	[SERI/TR-51-163] 25 p0 158 N80-14519
SOLAR CORPUSCULAR RADIATION	Commercialization strategy report for small wind
Possibility of conversion of solar corpuscular	systems [TID-28844-DRAPT] 25 p0161 N80-14543
radiation energy into electrical energy	[TID-28844-DRAPT] 25 p0161 N80-14543 Commercialization strategy report for solar water
25 p0085 A80-20495	heating
	[TID=28856-DP&PT] 25 m0.161 NOD-10.505

SOLAR REERGY ABSORBERS SUBJECT INDEX

A review of the economics of selected passive and hybrid systems design concepts for solar energy utilization  [SERI/TF-61-144] 25 p0161 N80-14547  Commercializing solar architecture [SERI/TF-62-113] 25 p0161 N80-14548  The 10 MW solar thermal pilot plant dynamic simulation. Volume 1: Computer program description  [ATE-78 (7747)-1-VOL-1] 25 p0162 N80-14550  The 10 MW solar thermal pilot plant dynamic simulation. Volume 2: Computer program source listing [ATR-78 (7747)-2-VOL-2] 25 p0162 N80-14551  Engineers guide to solar energy [PB-297043/2] 25 p0164 N80-14574  Photovoltaic power system reliability considerations [NASA-TM-79291] 25 p0170 N80-15422  Evaluation of the evacuated solar annular receivers used at the Midtemperature Solar Systems Test Facility (MSSTP) [SAND-78-0983] 25 p0173 N80-15585	Coatings for enhanced photothermal energy collection. II - Non-selective and energy control films  25 p0086 A80-20714  Cobalt oxide as a spectrally selective material for use in solar collectors  25 p0086 A80-20719  The spectral selectivity of conducting micromeshes as solar energy absorbers  25 p0087 A80-20720  Stabilized CVD amorphous silicon for high temperature photothermal solar energy conversion 25 p0087 A80-20722  Materials for solar thermal conversion [COO-4557-1] 25 p0143 N80-13670  Thermal aging characteristics of electrodeposited black chrome solar coatings [SAND-78-2094c] 25 p0159 N80-14527  Studies of directly absorbing fluids for mid-temperature solar thermal applications [NLB-2625-OP] 25 p0160 N80-14540
Dynamic storage in solar total energy programs [SAND-78-0958C] 25 p0 174 M80-15600 Solar mechanical energy storage program overview and systems analysis results [SAND-79-1642C] 25 p0 178 M80-15637	Conceptual design, realization and experimentation of a concentration photovoltaic generator - SOPHOCLE 1000 prototype Prench thesis 25 p0001 A80-10109 A review of in situ composites for nonstructural
Solar enhanced oil recovery: An assessment of economic feasibility [SAND-79-0787] 25 p0178 N80-15641  SOLAE EMERGY ABSORBERS A new approach to low cost large area selective	applications 25 p0002 A80-10285 Second-law analysis of solar-thermal processes 25 p0003 A80-10843 A new approach to low cost large area selective
surfaces for photothermal conversion 25 p0003 A80-10845 A theoretical study of laminar free convection in	surfaces for photothermal conversion 25 p0003 A80-10845 The photo-electrochemical production of C-C bonds
1-D solar induced flows 25 p0005 A80-11337 Performance of silicon solar cells in frcnt of a water absorber	from carbon dioxide  25 p0004 A80-10848  Design of a small thermochemical receiver for solar thermal power
25 p0019 A80-12125 On the performance of air-based solar heating systems utilizing phase-change energy storage 25 p0020 A80-12427	25 p0005 A80-11338 Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370
Modeling of a thermal wall panel using phase change materials	Solar panels exposed to cosmic rays 25 p0008 A80-11825
25 p0021 A80-12439 Solar absorption spectra of PbS-Al and PbSe-Al systems	The compatibility of wind and solar technology with conventional energy systems 25 p0008 A80-11828
25 p0027 A80-12781 Performance characteristics of solar regenerators 25 p002e A80-12787 The scope of effective medium theory for fine	Photochemical conversion and storage of solar energy 25 p0009 A80-11829 Some promising aspects regarding solar energy conversion with metal oxide photovoltaic cells
metal particle solar absorbers 25 p0029 A80-12835 Efficiency of quantum-utilizing solar energy	25 p0011 A80-11853 Improvements in the performance of a low cost thin film solar cell
converters in the absence of intraband thermalization 25 p0030 A80-12838	25 p0018 &80-11989 Materials resource requirements and potential limitations in solar energy products
Textured silicon - A selective absorber for solar thermal conversion 25 p0034 A80-13980	25 p0018 A80-11990 Materials research - Protable impacts on solar energy
Flat-plate solar collector materials 25 p0035 A80-14409 Selective ray-absorption as means of increasing	25 p0018 A80-11991 Insolation modeling overview 25 p0020 A80-12428
the efficiency of a high-temperature solar energy system for Stirling engine and solar thermal rocket  25 p0036 A80-14597	The marginal cost of electricity used as backup for solar hot water systems - A case study 25 p0021 A80-12436 Determination of the optimal solar investment
Investigation of absorptive and radiative characteristics of an ideal selective surface for solar energy absorbers	decision criterion 25 p0021 A80-12437 Solar energy for rural development; Proceedings of
25 p0044 A80-16632 Selective black nickel coatings on zinc surfaces by chemical conversion for high solar energy absorption	the National Solar Energy Convention, Bhavnagar, India, December 20-22, 1978  25 p0023 A80-12739  Solar energy availability over India for maximum
25 p0060 A80-18126 A simplified technique for comparing the effectiveness of collector absorber coatings	utilisation 25 p0023 A80-12740 Studies of photogalvanic cells
25 p0061 A80-18133 Operational and parameter studies of a	25 p0023 A80-12743 Selection of working fluids for low temperature
solar-powered absorption cycle system with internal latent energy storages [ASME PAPER 79-WA/SOL-27] 25 p0067 A80-18568	solar thermal power cycles  25 p0024 A80-12751  Prime mover for solar power plant
Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0084 A80-20141	25 p0024 A80-12752 A parametric study of solar thermal rower plant
25 pulo4 aou-20141	25 p0024 A80-12753 Storage of solar heat by solid-liquid phase change 25 p0024 A80-12755

Review of thermal storage materials from the view point of solar energy application 25 p0025 A80-12756 Electrochemical storage of photovoltaic solar energy 25 p0025 A80-12757 Design of 1-ton solar operated LiBr-water air-conditioning system with special reference to solar part 25 p0025 A80-12759 Programme and progress of DST sponsored solar photovoltaic work in India 25 p0025 A80-12760 Role of oxide layer in Schottky barrier solar cells 25 p0025 A80-12761 Cadmium telluride solar cells 25 p0026 A80-12765 Experimental study of MOS solar cells under 25 p0C26 A80-12769 Techno-economic feasibility analysis of solar cells with and without concentrators for rural lighting 25 p0026 A80-12773 Experimental investigation of various barrier metals for Schottky barrier and MOS solar cells 25 p0027 A80-12776 Design and development of a 100 peak watt photovoltaic concentrator system 25 p0027 A80-12778 Industrial applications of solar energy in India 25 p0027 A80-12780 Experimental investigations of an intermittent ammonia-water solar refrigerator 25 p0028 A80-12786 Performance characteristics of solar regenerators 25 p0028 A80-12787 The turnover times and pool sizes of photosynthetic hydrogen production by green algae 25 p0029 A80-12819 Efficiency of quantum-utilizing solar energy converters in the absence of intraband thermalization 25 p0030 A80-12838 Thermodynamic analysis of thermomechanical solar energy converters operating in conjunction with solar cells 25 p0035 A80-14592 High-woltage multijunction solar cell 25 p0035 A80-14593 Studies in heat transfer: A Pestschrift for E. R. G. Eckert --- Book 25 p0036 A80-14655 Solar collectors as energy converters 25 p0036 A80-14670 Influence of the working fluid on heat transfer and layout of solar tower receivers 25 p0036 A80-14671 Calculation of steam generation with parabolic solar collectors 25 p0039 A80-15328
Coulombic effects in the quenching of photoexcited
Tris/2,2\*-bipyridine/ruthenium/II/ and related
complexes by methyl viologen --- electron
transfer reactions in solar energy conversion processes 25 p0040 A80-15358 A solar-heated water system for a photographic processing laboratory 25 p0041 A80-15750 Global aspects of sunlight as a major energy source 25 p0048 A80-17131 Petroleum plantations and synthetic chloroplasts 25 p0049 A80-17137 Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices 25 p0051 A80-17244 Results of interdepartmental tests of solar water heaters over an annual cycle. I 25 p0051 A80-17245 Algorithm for calculating the shading and blocking of the heliostats of a solar electric power plant 25 p0051 A80-17246

Structure of an averaged statistical pencil of

Thionine coated electrode for photogalvanic cells 25 p0051 A80-17343

25 p0051 A80-17247

rays reflected from a heliostat

Solar-hydrogen energy systems --- Book 25 p0051 A80-17573 Introduction - A review of the scope --solar-hydrogen energy conversion 25 p0052 A80-17574 Direct thermal decomposition of water 25 p0052 A80-17577 Photoelectrochemical hydrogen production 25 p0052 A80-17580 Solar energy storage by metal hydride 25 p0053 A80-17582 Direct solar energy conversion at sea 25 p0053 A80-17583 Analysis of systems for the generation of electricity from solar radiation . 25 p0060 A80-18124 The impact of a conceptual solar thermal electric conversion plant on regional meteorological
conditions - A numerical study 25 p0060 A80-18125 An electrochemical heat engine for direct solar energy conversion 25 p0061 A80-18131 Advanced solar thermal receiver technology [AIAA PAPER 80-0292] 25 p0063 A80-18297 Performance characteristics of point-focusing distributed-receiver solar Brayton systems [AIAA PAPER 80-0293] 25 p0063 A80-18298 A new solar thermal electricity/cooling generation svsten [AIAA PAPER 80-0296] 25 p0063 A80-18300 Experimental results of the solar heating system on the LSU field house [ATAA PAPER 80-0297] 25 p0063 A80 Optimization of a point-focusing, distributed 25 p0063 A80-18301 receiver solar thermal electric system
[ASME PAPER 79-WA/SOL-11] 25 p0065 A80-18553
Solar-powered liquid-metal MHD power systems
[ASME PAPER 79-WA/SOL-22] 25 p0065 A80-18554 Simulation of solar-assisted urban sewage digestion
[ASME PAPER 79-WA/SOL-36] 25 p0065 A80-18556 The thermal design and analysis of an integrated The thermal design and analysis of an integrated sodium boiler/receiver for solar energy conversion [ASME PAPER 79-BA/SOL-10] 25 p0067 A80-18569 Thermal energy utilization in the Mississippi County Community College Photovoltaic Project [ASME FAPER 79-BA/SOL-29] 25 p0068 A80-18575 SOLSTEP - A computer model for predicting the thermodynamic and economic performance of solar thermal power plants.
[ASME PAPER 79-WA/SOL-12] 25 p0068 A80-18579 A design method for optimizing collector systems for small solar center receivers
[ASME PAPER 79-WA/SOL-14] 25 p0068 A80-18580 A solar thermal electric power plant for small communities [ASME PAPER 79-WA/SOL-7] 25 p0069 A80-18584 Small solar thermal electric power plants with early commercial potential
[ASME PAPER 79-WA/SOL-9] 25 p0069 A80-18586
Comparison of predicted and measured solar energy Comparison or predicted and measured solal energy system performance
[ASME PAPER 79-WA/SOL-39] 25 p0069 A80
International Conference on the Photochemical
Conversion and Storage of Solar Energy, 2nd, 25 p0069 A80-18589 Cambridge University, Cambridge, England, August 10-12, 1978, Lectures 25 p0072 A80-18746 Principles of photoelectrochemical solar energy 25 p0074 A80-18990 Hydrogen and oxygen from water. II - Some considerations in the reduction of the idea to practice 25 p0078 A80-19473 Improved planar solar convertor based on uranyl neodymium and holmium glasses 25 p0083 A80-19740 Open cycle air turbine solar thermal power system 25 p0083 A80-19989 OTEC - Solar energy from the sea 25 p0085 A80-20424 Possibility of conversion of solar corpuscular radiation energy into electrical energy 25 p0085 A80-20495 Materials testing for central receiver solar-thermal rower systems [DOE/TIC-10103] 25 p0096 N80-10606

Dispersed power systems and total	energy
[SAND-78-2006C]	25 p0096 N80-10608
Safety and environmental implicati	ions DOF/Sandia
Nidtemperature Solar Systems Tes [SAND-78-2292C]	25 p0097 N80-10609
Solar assisted heat pump overview	
in-house research	
[BNL-24911]	25 p0C98 N80-10624
Survey of solar thermal energy sto	
for thermal/electric application [ORNL/TM-5758]	25 p0098 N80-10627
Selected results from the technology	ogv assessment of
solar energy program	,,,
[LA-UR-79-950]	25 p0099 N80-10637
Analytical evaluation of a solar	
thermophotovoltaic (TPV) convert [SAND-79-0504C]	25 p0099 N80-10638
Plywheel energy storage and conver	
solar photovoltaic applications	
[COO-4094-31]	25 p0100 N80-10639
Graphical representation of TMY so	
availability for one- and two-ax collectors	ris solar
[SAND-79-0418]	25 p010C N80-10640
Determination of the technical and	
feasibility of luminescent solar	concentrators
[SAND-79-7005]	25 p0 100 N80-10650
Preliminary analysis of a total so [COC-4546-4]	25 p0101 N80-10653
Solar commercialization	25 po 101 880-10055
[GPC-43-586]	25 p0109 N80-11556
Concentrating solar collector test	t results
	(CHTF)
[SAND-78-0977] Proceedings: Solar Thermal Power	25 p0111 N80-11580
Panel Meeting	user neview
[SERI/TF-69-221]	25 p0113 N80-11598
Status of information for consume	rs of small wind
energy systems	25 -0442 NOA 44600
[SERI/TP-51-158] Energy storage for solar air cond	25 p0113 N80-11602
applications utilizing a form-st	table. high
density polyethylene pellet bed	
F MT M 2500 (AD) 3	
[MLM-2598(OP)]	25 p0113 N80-11603
Midtemperature Solar Systems Test	Pacility (MSSTF)
Midtemperature Solar Systems Test project test results: Phase 4A	Pacility (MSSTF)
Midtemperature Solar Systems Test project test results: Phase 4A   operation	Pacility (MSSTF) MSSTF system
Midtemperature Solar Systems Test project test results: Phase 4A ( operation [SAND-78-1088] Research overview of biological as	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 ad chemical
Midtemperature Solar Systems Test project test results: Phase 4A ( operation [SAND-78-1088] Research overview of biological au conversion methods and identific	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 ad chemical
Midtemperature Solar Systems Test project test results: Phase 4A i operation [SAND-78-1088] Research overview of biological a conversion methods and identific research areas for SERI	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 nd chemical cation of key
Midtemperature Solar Systems Test project test results: Phase 4A ( operation [SAND-78-1088] Research overview of biological au conversion methods and identificates research areas for SERI [SERI/TR-33-067]	Pacility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617
Midtemperature Solar Systems Test project test results: Phase 4A i operation [SAND-78-1088] Research overview of biological a conversion methods and identific research areas for SERI	Pacility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617
Midtemperature Solar Systems Test project test results: Phase 4A project research overview of biological and conversion methods and identified research areas for SERI [SERI/TE-33-067]  Preliminary materials assessment demonstration systems [ANL/EES-CP-30]	Pacility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619
Midtemperature Solar Systems Test project test results: Phase 4A poperation [SAND-78-1088] Research overview of biological and conversion methods and identification research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Haximum power trackers for photoworks	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 nd chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photograms [COO-4094-17]	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 obtaic arrays 25 p0116 N80-11627
Midtemperature Solar Systems Test project test results: Phase 4A project results: Phase 4A p	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 obtaic arrays 25 p0116 N80-11627
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photowow [COO-4094-17] Solar energy with latent heat story Fundamentals and applications [ASSA-10/1978]	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 poltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11632
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identificate research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photogram [COO-4094-17] Solar energy with latent heat storundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in	Pacility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy
Midtemperature Solar Systems Test project test results: Phase 4A project results: Phase	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 nd chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identification research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photom [COO-4094-17] Solar energy with latent heat store Fundamentals and applications [ASSA-10/1978] Pluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy conver:	Pacility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 poltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment: demonstration systems [ANL/EES-CP-30] Maximum power trackers for photow [COO-4094-17] Solar energy with latent heat stor Fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy convertively.	Pacility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 poltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photom [COO-4094-17] Solar energy with latent heat store Fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy conver: [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 ad chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photom [COO-4094-17] Solar energy with latent heat store fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy conver [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TH-79318]	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 poltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 a remote African  25 p0123 N80-12552
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photow [COO-4094-17] Solar energy with latent heat stor Fundamentals and applications [ASSA-10/1978] Pluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy convertive [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TM-79318] Effect of operating temperatures of	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 nd chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photom [COO-4094-17] Solar energy with latent heat store fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy conver [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TH-79318]	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 ad chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of cic power plants
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photom [COO-4094-17] Solar energy with latent heat store Fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy conver: [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TM-79318] Effect of operating temperatures energy from solar thermal elections.	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 nd chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of cover plants 25 p0124 N80-12563
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photomy [COO-4094-17] Solar energy with latent heat store Fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy conver: [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TM-79318] Effect of operating temperatures denergy from solar thermal elect: [SAND-79-0801] Systems Analysis and testing (SAT) [SERI/PR-35-313]	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 ad chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0124 N80-12552 on the cost of cic power plants 25 p0124 N80-12563 ) program 25 p0124 N80-12565
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photomy [COO-4094-17] Solar energy with latent heat story Fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy convert [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Voltat [NASA-TM-79318] Effect of operating temperatures energy from solar thermal electrics [SAND-79-0801] Systems Analysis and testing (SAT) [SERI/PR-35-313] The great adventure: A report on	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 cage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of cic power plants 25 p0124 N80-12563 ) program 25 p0124 N80-12565 the 10 regional
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment: demonstration systems [ANL/EES-CP-30] Maximum power trackers for photow [COO-4094-17] Solar energy with latent heat stor Fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy conver: [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TM-79318] Effect of operating temperatures energy from solar thermal elect: [SAND-79-0801] Systems Analysis and testing (SAT; [SERI/PR-35-313] The great adventure: A report on public hearings on solar energy	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 cage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of cic power plants 25 p0124 N80-12563 ) program 25 p0124 N80-12565 the 10 regional
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photomy [COO-4094-17] Solar energy with latent heat story Fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy convert [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Voltat [NASA-TM-79318] Effect of operating temperatures energy from solar thermal electrics [SAND-79-0801] Systems Analysis and testing (SAT) [SERI/PR-35-313] The great adventure: A report on	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 ad chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 cage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of ric power plants 25 p0124 N80-12563 ) program 25 p0124 N80-12565 the 10 regional for the domestic
Midtemperature Solar Systems Test project test results: Phase 4A project re	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 ad chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11627 rage:  25 p0118 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of ric power plants 25 p0124 N80-12563 ) program 25 p0124 N80-12565 the 10 regional for the domestic  25 p0124 N80-12567 -down solar systems
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANI/EES-CP-30] Maximum power trackers for photow [COO-4094-17] Solar energy with latent heat store Fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy convers [WKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TM-79318] Effect of operating temperatures energy from solar thermal electrical [SAND-79-0801] Systems Analysis and testing (SAT) [SERI/PR-35-313] The great adventure: A report on public hearings on solar energy policy review [HCP/U6354-01] Operational experience with drain-[IS-M-166]	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 ad chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays  25 p0116 N80-11627 cage:  25 p0116 N80-11632 Energy storage and sion systems  25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of cic power plants 25 p0124 N80-12563 program 25 p0124 N80-12565 the 10 regional for the domestic  25 p0124 N80-12567 down solar systems 25 p0124 N80-12567
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identification research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photow [COO-4094-17] Solar energy with latent heat store Fundamentals and applications [ASSA-10/1978] Pluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy conver: [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TH-79318] Effect of operating temperatures energy from solar thermal elect: [SAND-79-0801] Systems Analysis and testing (SAT: [SERI/PR-35-313] The great adventure: A report on public hearings on solar energy policy review [HCP/U6354-01] Operational experience with drain- [IS-H-166] Direct labor requirements for selections.	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 nd chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of rice power plants 25 p0124 N80-12563 ) program 25 p0124 N80-12565 the 10 regional for the domestic  25 p0124 N80-12567 down solar systems 25 p0125 N80-12576 ect solar energy
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment: demonstration systems [ANL/EES-CP-30] Maximum power trackers for photow [COO-4094-17] Solar energy with latent heat stor Fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy conver: [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TH-79318] Effect of operating temperatures energy from solar thermal elect: [SAND-79-0801] Systems Analysis and testing (SAT: [SERI/PR-35-313] The great adventure: A report on public hearings on solar energy policy review [HCP/U6354-01] Operational experience with drain: [IS-M-166] Direct labor requirements for seletechnologies: A review and syn-	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 ad chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of ric power plants 25 p0124 N80-12563 ) program 25 p0124 N80-12565 the 10 regional for the domestic  25 p0124 N80-12567 down solar systems 25 p0125 N80-12576 ect solar energy
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identification of the search areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Maximum power trackers for photomy [COO-4094-17] Solar energy with latent heat store fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy conver: [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TM-79318] Effect of operating temperatures energy from solar thermal electics [SAND-79-0801] Systems Analysis and testing (SAT) [SERI/PR-35-313] The great adventure: A report on public hearings on solar energy policy review [HCE/U6354-01] Operational experience with drain- [IS-M-166] Direct labor requirements for seletechnologies: A review and syn- [SERI/RB-53-045]	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11617 in solar  25 p0116 N80-11627 rage:  25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of ric power plants 25 p0124 N80-12563 iprogram 25 p0124 N80-12565 the 10 regional for the domestic  25 p0124 N80-12567 down solar systems 25 p0125 N80-12576 ect solar energy thesis 25 p0126 N80-12576
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment: demonstration systems [ANL/EES-CP-30] Maximum power trackers for photow [COO-4094-17] Solar energy with latent heat stor Fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy conver: [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TH-79318] Effect of operating temperatures energy from solar thermal elect: [SAND-79-0801] Systems Analysis and testing (SAT: [SERI/PR-35-313] The great adventure: A report on public hearings on solar energy policy review [HCP/U6354-01] Operational experience with drain: [IS-M-166] Direct labor requirements for seletechnologies: A review and syn: [SERI/RB-53-045] October 1978 environmental data for National Solar Data Network	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11617 in solar  25 p0116 N80-11627 rage:  25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of ric power plants 25 p0124 N80-12563 iprogram 25 p0124 N80-12565 the 10 regional for the domestic  25 p0124 N80-12567 down solar systems 25 p0125 N80-12576 ect solar energy thesis 25 p0126 N80-12576
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment: demonstration systems [ANL/EES-CP-30] Maximum power trackers for photow [COO-4094-17] Solar energy with latent heat stor Fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy convers [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TM-79318] Effect of operating temperatures energy from solar thermal elects [SAND-79-0801] Systems Analysis and testing (SAT) [SERI/PR-35-313] The great adventure: A report on public hearings on solar energy policy review [HCP/U6354-01] Operational experience with drain [IS-M-166] Direct labor requirements for self technologies: A review and syntesent solar Data Network [SOLAR/0010-78-10]	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 ad chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of ric power plants 25 p0124 N80-12563 i) program 25 p0124 N80-12565 the 10 regional for the domestic  25 p0125 N80-12576 ect solar energy thesis 25 p0126 N80-12578 or sites in the
Midtemperature Solar Systems Test project test results: Phase 4A poperation [SAND-78-1088] Research overview of biological an conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment demonstration systems [ANL/EES-CP-30] Haximum power trackers for photow [COO-4094-17] Solar energy with latent heat store Fundamentals and applications [ASSA-10/1978] Pluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy conver. [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TH-79318] Effect of operating temperatures energy from solar thermal elect. [SAND-79-0801] Systems Analysis and testing (SAT] [SERI/PR-35-313] The great adventure: A report on public hearings on solar energy policy review [HCP/U6354-01] Operational experience with drain. [IS-M-166] Direct labor requirements for selecthologies: A review and sync [SERI/RB-53-045] October 1978 environmental data for National Solar Data Network [SOLAR/0010-78-10] Residential on site solar heating	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of ric power plants 25 p0124 N80-12563 ) program 25 p0124 N80-12565 the 10 regional for the domestic  25 p0124 N80-12567 -down solar systems 25 p0125 N80-12576 ect solar energy thesis 25 p0126 N80-12578 or sites in the  25 p0126 N80-12578 or sites in the
Midtemperature Solar Systems Test project test results: Phase 4A is operation [SAND-78-1088] Research overview of biological as conversion methods and identific research areas for SERI [SERI/TR-33-067] Preliminary materials assessment: demonstration systems [ANL/EES-CP-30] Maximum power trackers for photow [COO-4094-17] Solar energy with latent heat stor Fundamentals and applications [ASSA-10/1978] Fluid Dynamics of Porous Media in Applications, volume 1 heat transfer in solar energy convers [VKI-LEC-SER-1979-4-VOL-1] A photovoltaic power system in the village of Tangaye, Upper Volta [NASA-TM-79318] Effect of operating temperatures energy from solar thermal elects [SAND-79-0801] Systems Analysis and testing (SAT) [SERI/PR-35-313] The great adventure: A report on public hearings on solar energy policy review [HCP/U6354-01] Operational experience with drain [IS-M-166] Direct labor requirements for self technologies: A review and syntesent solar Data Network [SOLAR/0010-78-10]	Facility (MSSTF) MSSTF system  25 p0114 N80-11613 and chemical cation of key  25 p0115 N80-11617 in solar  25 p0115 N80-11619 oltaic arrays 25 p0116 N80-11627 rage:  25 p0116 N80-11627 rage:  25 p0116 N80-11632 Energy storage and sion systems 25 p0121 N80-12338 e remote African  25 p0123 N80-12552 on the cost of ric power plants 25 p0124 N80-12563 ) program 25 p0124 N80-12565 the 10 regional for the domestic  25 p0124 N80-12567 -down solar systems 25 p0125 N80-12576 ect solar energy thesis 25 p0126 N80-12578 or sites in the

```
Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 880-12589
Analysis of the Call 25 pulz, acc ... [LBL-7860-VOL-2] 25 pulz, acc ... 26 pulz, acc ... 27 pulz, acc ... 28 Architectural concerns in solar system design and
     installation
     [SCLAB/0801-79-01]
                                                                                 25 p0129 N80-12607
Solar-powered steam generator heliostat
[BNL-50974] 25 p0
[BNL-50974] 25 p0129 N80-12610
Photothermal conversion surface measurements using
    photoacoustic and photothermal spectroscopies
[IS-M-202] 25 p0129 No
Photothermal conversion of solar energy into
                                                                                 25 p0129 180-12611
     electricity
[DOE-TR-159] 25 p0130 N80-12612
Circumsolar radiation data for central receiver
     simulation
     [LBL-8371]
                                                                                 25 p0131 N80-12647
Solar-climatic statistical study. Summary report,
     volume 1
    [HCP/T4016-1]
                                                                                 25 p0132 N80-12707
The water splitting light reaction of chlorophyll a dihydrate. Visible light solar energy conversion after the primary reaction in plant
     photosynthesis
                                                                                  25 p0133 N80-13188
Biological transformation of light energy into methane using an anaerobic filter
                                                                                 25 p0133 N80-13267
Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642 Linear concentration solar collector in an air
     supported enclosure. Preliminary design study
[SAND-78-7022] 25 p0141 880-13644
Performance testing of the General Electric
    Engineering Prototype Collector [SAND-79-0514]
                                                                                25 p0141 N80-13645
Review of the environment effects and benefits of
    selected solar energy technologies
[SERI/TP-53-114B] 25
                                                                                 25 p0141 N80-13649
Design, construction, and operation of the solar
    assisted heat pump ground coupled storage
experiments at Brookhaven National Laboratory
     [BNL-25908]
                                                                                 25 p0142 N80-13654
Solar thermal power systems
    [ DOE/ET-0078/T1]
                                                                                 25 p0143 N80-13662
Technology development needs for high temperature process heat
      [SERI/TE-35-047]
Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system
     [SAND-79-1053c]
                                                                                 25 p0144 N80-13671
Silicon concentrator solar cell manufacturing
     development
     [SAND-79-7021]
[SAND-79-7021] 25 p0146 N80-13697 Interim structural design standard for solar
    energy applications, phases 1 and 2 --- boiler
    and pressure vessel code [SAND-79-8183]
                                                                                .25 p0146 N80-13698
Review of solar energy
[SERI/TR-54-066]
                                                                                 25 p0 146 N80-13699
Solar heating and cooling research projects: A
     summary
     [ EPRI-ER-1095-SR ]
                                                                                 25 p0147 N80-13703
Thin film problems and research in energy systems [CONF-761168-SUMM] 25 p0147 M80-13705 Industrial applications of advanced energy systems [CONF-790602-54] 25 p0147 M80-13708 Solar-climactic statistical study --- windpower
     utilization and solar energy conversion
Rough cost estimates of solar thermal/coal or biomass-derived fuels [SEBI/TE-35-279] 25 no.151 No. 2002
Solar concentrator
    [NASA-CASE-MPS-23727-1]
                                                                                 25 p0153 N80-14473
A conceptual design study on the application of liquid metal heat transfer technology to the
liquid metal heat transfer technology solar thermal power plant [NASA-CR-162544] 25 p0154 N80-14484 Application of field-modulated generator systems to dispersed solar thermal electric generation [NASA-CR-162536] 25 p0155 N80-14488
[NASA-CR-162536] 25 p0155 N80-1
Results of thermal performance evaluation of the
     Owens-Illinois sunpack liquid solar collector at
     indoor conditions
     f NASA-CR-1611891
                                                                                  25 p0156 N80-14500
```

SUBJECT INDEX SOLAR BEATING

Analysis of remote site energy storage and	The ampere-hour efficiency of photovoltaic solar
generation systems systems analysis of solar	generators 25 p0047 A80-16999
energy conversion and windpower utilization energy storage systems	Advanced solar thermal receiver technology
[AD-A074869] 25 p0 156 N80-14504	[AIAA PAPER 80-0292] 25 p0063 A80-18297
Application of diffusion research to solar energy	A new solar thermal electricity/cooling generation
policy issues	system
[SERI/TR-51-194] 25 p0 158 N80-14518	[AIAA PAPER 80-0296] 25 p0063 A80-18300
Implementation of state solar incentives: A	A home-size solar-powered engine for cooling systems of generation of electricity
preliminary assessment [SERI/TR-51-159] 25 p0158 N80-14520	[ASME PAPER 79-WA/SOL-34] 25 p0066 A80-18562
Non-tracking inflated cylindrical solar concentrator	Small solar thermal electric power plants with
[UCRL-82721] 25 p0159 N80-14528	early commercial potential
Commercial solar augmented heat pump system	[ASME PAPER 79-WA/SOL-9] 25 p0069 A80-18586
[EPRI-ER-1004] 25 p0160 N80-14537 Systems Studies for Central Solar Thermal Electric	The effects of regional insolation differences upon advanced solar thermal electric power plant
[CONP-780383] 25 p0162 N80-14558	performance and energy costs
Electric utility solar energy activities, 1978	[ASME PAPER 79-WA/SOL-15] 25 p0069 A80-18588
[EPRI-ER-966-SR] 25 p0 162 N80-14560	Design of the International Energy Agency 500 kWe
System tests and applications photovoltaic program	distributed-collector solar thermal-electric
[HCP/T4024-01/15] 25 p0163 N80-14566	powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592
Insolation models, data and algorithms [SERI/TR-36-110] 25 p0165 N80-14617	Solar thermal central receiver systems
Decentralized solar photovoltaic energy systems	[ASME PAPER 79-WA/HT-38] 25 p0070 A80-18596
[LA-7866-TASE] 25 p0171 N80-15565	Peasible thermophysical conditions for gas
SERAPH implementation plans	receiver tubes in solar power stations
[SERI/RR-34-152] 25 p0172 N80-15570 . Department of Energy large solar central power	[ASME PAPER 79-WA/HT-37] 25 p0071 A80-18627 A small hybrid solar closed-cycle gas turbine
systems semiannual review	cogeneration plant concept based on today's
[SAND-78-8511] 25 p0 175 N80-15601	technology
Department of Energy large solar central power	[ASME PAPER 79-WA/GT-3] 25 p0071 A80-18637
systems semiannual review	Solar-thermal jet pumping for irrigation
[SAND-79-8508] 25 p0175 N80-15602 Solar/wind handbook for Hawaii: Technical	[AIAA PAPER 80-0402] 25 p0077 A80-19328 Open cycle air turbine solar thermal rower system
applications for Hawaii, the Pacific Fasin and	25 p0083 A80-19989
sites worldwide with similar climatic conditions	The first small power system experiment, Phase 1:
[UCRL-15053] 25 p0177 N80-15628	Engineering experiment no. 1 solar thermal
Role of the government in the development of solar	electric power plants
energy [SERI/TP-52-138] 25 p0178 N80-15639	[NASA-CR-162417] 25 p0095 N80-10596 The 10MW(e) solar thermal central receiver pilot
OLAR FLUX	plant: Heliostat foundation and interface
Solar access law. Protecting access to sunlight	structure investigation
for solar energy systems	[SAND-78-8180] 25 p0097 N80-10612
[PB-296532/5] 25 p0117 N80-11633	MDAC/Rocketdyne solar receiver: Design review
Measurement of circumsolar radiation: Status report [LBL-8391] 25 p0133 N80-12982	[SAND-78-8188] 25 p0097 N80-10616 Technical and economic assessment of solar powered
[LBL-8391] 25 p0133 N80-12982 OLAE PURNACES	water pumping for remote areas
Development of optical waveguides for a	[SAND-79-8187] 25 p0129 N80-12608
power-related application of solar radiation	Project CESA-1, a 1 MW solar power plant in Almeria
transmission	[AED-CONF-78-212-011] 25 p0130 N80-12614
25 p0036 A80-14596	Test plan for the Mead 25-kW Photovoltaic Flexible Test Facility, 1979
Calculation of the optical characteristics of high-power two-mirror solar furnaces	[COO-4094-53] 25 p0146 N80-13692
25 p0044 A80-16629	Sandia Laboratories operational experience with
OLAE GENERATORS	small heat engines in solar thermal power systems
Concentration ratio and efficiency in	[SAND-78-2163C] 25 p0146 N80-13693
thermophotovoltaics 25 p0005 A80-11336	Materials testing for central receiver solar-thermal rower systems
A theoretical study of laminar free convection in	[TID-29443] 25 p0146 N80-13695
1-D solar induced flows	Solar central receiver prototype heliostat CDRL
° 25 p0005 A80-11337	item B.D., volume 1
Design of a small thermochemical receiver for	[SAN-1605/7-VOL-1] 25 p0146 N80-13700
solar thermal power 25 p0005 A80-11338	Application of field-modulated generator systems to dispersed solar thermal electric generation
Solar electric generating system resource	[NASA-CR-162536] 25 p0155 N80-14488
requirements	solar thermal power systems advanced solar thermal
25 p0005 A80-11341	technology project, advanced subsystems
Low-cost central receiver solar power plant using	
	development [
molten salt as a heat transfer and storage medium	[NASA-CR-162546] 25 p0155 N80-14491
molten salt as a heat transfer and storage medium 25 p0017 A80-11986	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601 SOLAR BEATING
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601 SOLAR BEATING Second-law analysis of solar-thermal processes
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature solar thermal power cycles	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601 SOLAR REATING Second-law analysis of solar-thermal processes 25 p0003 A80-10843
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature solar thermal power cycles 25 p0024 A80-12751	[NASA-CR-162546] 25 p0155 N80-14491  Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601  SOLAR BEATING  Second-law analysis of solar-thermal processes 25 p0003 A80-10843  Performance of an inexpensive constant flow solar
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature solar thermal power cycles	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601 SOLAR HEATING Second-law analysis of solar-thermal processes 25 p0003 A80-10843 Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature solar thermal power cycles 25 p0024 A80-12751 Prime mover for solar power plant	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601 SOLAR REATING Second-law analysis of solar-thermal processes 25 p0003 A80-10843 Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846 Solar availability for winter space heating - An
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature solar thermal power cycles 25 p0024 A80-12751 Prime mover for solar power plant 25 p0024 A80-12752 Economics of small solar power plants in rural areas	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601 SOLAR BEATING Second-law analysis of solar-thermal processes 25 p0003 A80-10843 Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846 Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature solar thermal power cycles 25 p0024 A80-12751 Prime mover for solar power plant 25 p0024 A80-12752 Economics of small solar power plants in rural areas 25 p0024 A80-12754	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601 SOLAR BEATING Second-law analysis of solar-thermal processes 25 p0003 A80-10843 Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846 Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature solar thermal power cycles 25 p0024 A80-12751 Prime mover for solar power plant 25 p0024 A80-12752 Economics of small solar power plants in rural areas 25 p0024 A80-12754 SSPS project - Two solar power plants in Spain	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601 SOLAR REATING Second-law analysis of solar-thermal processes 25 p0003 A80-10843 Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846 Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370 Development of renewable energy sources in the
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature solar thermal power cycles 25 p0024 A80-12751 Prime mover for solar power plant 25 p0024 A80-12752 Economics of small solar power plants in rural areas 25 p0024 A80-12754 SSPS project - Two solar power plants in Spain 25 p0032 A80-13180	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601  SOLAR BEATING Second-law analysis of solar-thermal processes 25 p0003 A80-10843  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370  Development of renewable energy sources in the United Kingdom
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature solar thermal power cycles 25 p0024 A80-12751 Prime mover for solar power plant 25 p0024 A80-12752 Economics of small solar power plants in rural areas 25 p0024 A80-12754 SSPS project - Two solar power plants in Spain 25 p0032 A80-13180 Autonomous power supplies for telecommunications 25 p0033 A80-13211	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601 SOLAR REATING Second-law analysis of solar-thermal processes 25 p0003 A80-10843 Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846 Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370 Development of renewable energy sources in the United Kingdom 25 p0017 A80-11980 Economy of a retrofit solar system water heating
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature solar thermal power cycles 25 p0024 A80-12751 Prime mover for solar power plant 25 p0024 A80-12752 Economics of small solar power plants in rural areas 25 p0024 A80-12754 SSPS project - Two solar power plants in Spain 25 p0032 A80-13180 Autonomous power supplies for telecommunications 25 p0033 A80-13211 Calculation of steam generation with parabolic	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601  SOLAR BEATING Second-law analysis of solar-thermal processes 25 p0003 A80-10843 Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846 Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370 Development of renewable energy sources in the United Kingdom 25 p0017 A80-11980 Economy of a retrofit solar system water heating 25 p0017 A80-11984
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature solar thermal power cycles 25 p0024 A80-12751 Prime mover for solar power plant 25 p0024 A80-12752 Economics of small solar power plants in rural areas 25 p0024 A80-12754 SSPS project - Two solar power plants in Spain 25 p0032 A80-13180 Autonomous power supplies for telecommunications 25 p0033 A80-13211 Calculation of steam generation with parabolic solar collectors	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601 SOLAR BEATING Second-law analysis of solar-thermal processes 25 p0003 A80-10843 Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846 Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370 Development of renewable energy sources in the United Kingdom 25 p0017 A80-11980 Economy of a retrofit solar system water heating 25 p0017 A80-11984 Commercial building and industrial applications
molten salt as a heat transfer and storage medium 25 p0017 A80-11986 Color graphic controls for the solar central receiver test facility 25 p0022 A80-12626 Selection of working fluids for low temperature solar thermal power cycles 25 p0024 A80-12751 Prime mover for solar power plant 25 p0024 A80-12752 Economics of small solar power plants in rural areas 25 p0024 A80-12754 SSPS project - Two solar power plants in Spain 25 p0032 A80-13180 Autonomous power supplies for telecommunications 25 p0033 A80-13211 Calculation of steam generation with parabolic	[NASA-CR-162546] 25 p0155 N80-14491 Department of Energy large solar central power systems semiannual review [SAND-78-8511] 25 p0175 N80-15601  SOLAR BEATING Second-law analysis of solar-thermal processes 25 p0003 A80-10843 Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846 Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370 Development of renewable energy sources in the United Kingdom 25 p0017 A80-11980 Economy of a retrofit solar system water heating 25 p0017 A80-11984

Near-term prospects for solar industrial process 25 p0018 A80-11988 Computers in the design of solar energy systems
25 p0020 A80-12426
On the performance of air-based solar heating systems utilizing phase-change energy storage 25 p0020 A80-12427 Validation methodology for solar heating and cooling systems 25 p0020 A80-12431 Instrumentation principles for performance measurement of solar heating systems 25 p0020 A80-12432 A microeconomic approach to passive solar design -Performance, cost, optimal sizing and comfort analysis 25 p0021 A80-12433 Optimal insulation of solar heating system pipes and tanks 25 p0021 A80-12434 Passive and active residential solar heating: A comparative economic analysis of select designs 25 p0021 A80-12435 The marginal cost of electricity used as backup for solar hot water systems - A case study 25 p0021 A80-12436 Determination of the optimal solar investment decision criterion 25 p0021 A80-12437 A high performance porous flat-plate solar collector 25 p0021 A80-12438 Design criteria in PCM wall thermal storage Phase Change Materials 25 p0021 A80-12440 Monitoring of the solar-heated modular homes at 25 p0022 A80-12607 Heat flow meters for solar system performance monitoring 25 p0022 A80-12608 Energy meter for solar air systems 25 p0022 A80-12609 A parametric study of solar thermal power plant 25 p0024 A80-12753 Testing of three installed solar domestic water heaters 25 p0025 A80-12758 Calculation of climatic solar heating performance 25 p0029 A80-12820 Correspondence between solar load ratio method for passive water wall systems and f-Chart performance estimates 25 p0029 A80-12821 An experimental study of corrugated steel sheet solar water heater 25 p0C29 A80-12822 Plat-plate solar collector materials 25 p0035 A80-14409 Studies in heat transfer: A Festschrift for E. R. G. Pokert --- Book 25 p0036 A80-14655 Solar collectors as energy converters 25 p0036 A80-14670 Absorption heat pumps for solar space heating 25 p0036 A80-14672 A study of the thermal effect that radiant energy produces on a mass of water --- Spanish thesis 25 p0040 A80-15653 A solar-heated water system for a photographic processing laboratory 25 p0C41 A80-15750 On a calculation procedure for a heat accumulator in a solar heating system 25 p0044 A80-16630 Investigation of aerodynamic drag of solar air 25 p0044 A80-16631 Investigation of absorptive and radiative characteristics of an ideal selective surface --- for solar energy absorbers 25 p0044 A80-16632 Global aspects of sunlight as a major energy source 25 p0048 A80-17131 Solar system with a hermetically and nonhermetically vitrified regenerative heater

Results of interdepartmental tests of solar water heaters over an annual cycle. I 25 p0051 A80-17245 Numerical computation of singular control problems with application to optimal heating and cooling by solar energy 25 p0051 A80-17307 Sensitivity of direct gain space heating performance to fundamental parameter variations 25 p0060 A80-18128 Solar heating system performance estimation using sinusoidal inputs 25 p0061 A80-18130 Experimental results of the solar heating system on the LSU field house [AIAA PAPER 80-0297] 25 p0063 A80-18301 Computer simulation results for planar reflectors and flat plate solar collectors [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559
A solar energy system with annual aquifer storage
[ASME PAPER 79-WA/SOL-30] 25 p0066 A80-18560 Addition of solar air heaters to a pre-engineered metal building
[ASME PAPER 79-WA/SOL-33] 25 p0066 A80-18566 Superheated steam generation in a Fresnel lens concentrating collector
[ASME PAPER 79-WA/SOL-21] 25 p0067 A80-25 p0067 A80-18567 Optimization and comparison strategies for solar energy systems
[ASME PAPER 79-WA/SOL-26] [ASME PAPER 79-WA/SOL-26] 25 p0067 A80-18573 The simulation of building heat transfer for passive solar systems PASSIVE SOLAR SYSTEMS
[ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574
Evaluation of a solar heating system installed in the LSO Pield House [ASHE PAPER 79-WA/SOL-31] 25 p0068 A80-18576 An optimization formulation for solar hot water systems [ASME PAPER 79-WA/SOL-42] 25 p0068 A80-18578 [ASME PAPER 79-WA/SOL-40] 25 p0069 A80-18583 A comparison of test results for flat-plate water-heating solar collectors using the BSE and Water-heating solar collectors using the BSE and ASHBAE procedures
[ASME PAPER 79-WA/SOL-4] 25 p0069 A80-18585
Performance of heat pumps at elevated evaporating temperatures - With application to solar input
[ASME PAPER 79-WA/SOL-19] 25 p0069 A80-18587
Comparisons of measured and simulated performance for CSU Solar House I [ASME PAPER 79-WA/SOL-35] 25 p0070 A80-18590 Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation [ASBE PAPER 79-WA/HT-67] 25 p0070 A80-18600 An applications analysis for the solar industrial process heat market 25 p0088 A80-20888 Optimization of a solar heating system with integral compensation 25 p0089 A80-20894 Passive solar energy programs and plans [GPO-36-211] 25 p0095 N80-10599 Ocmulgee national monument visitor center solar heating and cooling system design review data [NASA-CR-150706] 25 p0096 N80-10601 Solar heating and cooling systems design and development [ NASA-CR-150618] 25 p0096 N80-10602 MSPC solar heating and cooling high speed performance (Hisper) code validation [NASA-CR-161323] 25 pc 25 p0096 N80-10604 Economic performance of passive solar heating: A preliminary analysis [LA-UR-78-2861] 25 p0100 N80-10645 Optimal control studies of a solar heating system [IA-UR-78-2556] 25 p0100 N80-10646 Analysis of a LiCl open-cycle absorption air conditioner which utilizes a packed bed for regeneration of the absorbent solution driven by solar heated air Preliminary analysis of a total solar heating system [COO-4546-4] [COO-4546-4] 25 p0101 N80-10653 Experimental and numerical studies of liquid storage tank thermal stratification for a solar energy system [COO-4479-2] 25 p0101 N80-10655

and its energetic indices

25 p0051 A80-17244

SUBJECT INDEX SOLAR POSITION

Cost-effective control systems for solar heating National program plan for passive and hybrid solar heating and cooling
[DOE/CS-0089]

Conference on performance monitoring techniques
for evaluation of solar heating and cooling and cooling applications
[SAN-1592-1] 25 p0101 N80-10658 25 p0174 N80-15598 Solar energy system performance evaluation: A-Prame Industries, single family dwelling, Kaneohe, Hawaii [SOLAR/1010-78/141 systems [CONF-780432] 25 p0101 N80-10659 [CONF-780432] 25 p0174 N80-15599 Performance of residential solar heating and Optimal insulation of pipes and tanks for solar heating systems cooling system with flat-plate and evacuated [ALO-5319-2] 25 p0102 N80-10660 tubular collectors: CSU Solar House 1 Solar heating and cooling systems design and [COO-2577-17] SOLAR HOUSES 25 p0176 N80-15616 development [NASA-CR-150873] Passive and active residential solar heating: A Energy savings for a solar heated and cooled building through adaptive optimal control [LA-UR-78-2986] 25 p0115 N80-11616 comparative economic analysis of select designs
25 p0021 A80-12435
Design criteria in PCM wall thermal storage ---Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings
[BHFT-FE-T-78-48] 25 p0116 N80-Phase Change Materials 25 p0021 A80-12440 Monitoring of the solar-heated modular homes at 25 p0116 N80-11630 Los Alamos Solar energy with latent heat storage:
Pundamentals and applications 25 p0022 A80-12607 Correspondence between solar load ratio method for passive water wall systems and f-Chart performance estimates [ASSA-10/1978] 25 p0116 N80-11632 October 1978 environmental data for sites in the National Solar Data Network [SOLAR/0010-78-10] 25 p0029 A80-12821 Performance and analysis of a 'series' heat pump-assisted solar heated residence in Madison, 25 p0126 N80-12585 Experimental test facility for evaluation of solar control strategies Wisconsin [BL-8308] 25 p0126 N80-12586 Experimental results of the solar heating system on the LSU field house Residential on site solar heating systems. A project evaluation using the capital asset on the LSO field house
[AIAA PAPER 80-0297] 25 p0063 A80A simplified procedure for performance of solar
systems with heat pumps
[ASME PAPER 79-WA/SOL-23] 25 p0065 A80pricing model [LBL-8298] 25 p0126 N80-12588
Solar Heating And Cooling Of Buildings (SHACOB)
Commercialization report. Part B: Analysis of
market development, volume 2
[DDF/TIC-10071] 25 p0128 N80-12603 25 p0065 A80-18555 A home-size solar-powered engine for cooling [DOF/TIC-10071] 25 p0128 N80-12603 Solar energy perspectives for public power [SERI/TP-35-300] 25 p0140 N80-13635 systems of generation of electricity [ASME PAPER 79-WA/SOL-34] 25 pt [ASME PAPER 79-WA/SOL-34] 25 p0066 A80-18562 Addition of solar air heaters to a pre-engineered metal building
[ASME PAPER 79-WA/SOL-33] 25 p0066 As
The simulation of building heat transfer for Novel ceramic receiver for solar Brayton systems Novel ceramic receiver for solar Brayton systems
[COO-4878-3] 25 p0146 N80-13694
The solar in Federal buildings demonstration program
[FB-298535/6] 25 p0151 N80-14279
Development and testing of the Junkeeper Control
Corporation integrated programmable electronic
controller and hydronics package
[NNSA-TM-78248] 25 p0155 N80-14495 25 p0066 A80-18566 passive solar systems [ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18: Evaluation of a solar heating system installed in the LSU Field House 25 p0067 180-18574 [ASME PAPER 79-WA/SOL-31] 25 p0068 A80-18576 Comparison of predicted and measured solar energy [NASA-TM-78244] 25 p0155 N80-14495 Development and testing of the Rho Sigma
Incorporated microprocessor control subsystem system performance
[ASME PAPER 79-WA/SOL-39] 25 p0069 A80-18589
Comparisons of measured and simulated performance [NASA-TM-78246] 25 p0156 N80-14496 Development and testing of the Solar Control for CSU Solar House I
[ASME PAPER 79-WA/SOL-35] 25 p0070 A80-18590
A solar assisted and wind powered heat rump for Corporation modular controller and Solarstat subsystem
[NASA-TM-78243] residential dwellings
[ASME PAPER 79-WA/HT-33] 25 p0070 i
Optimization of a solar heating system with Development, testing and certification of the sigma research, maxi-therm-S-101 thermosyphon 25 p0070 A80-18595 heat exchanger [NASA-TM-78245] 25 p0156 N80-14499 integral compensation [MASA-TA-76245]
Computer program for assessing the economic feasibility of solar energy for single family residences and light commercial applications [MASA-TM-78251]
Engineering concerns in solar system design and 25 p0089 A80-20894 An evaluation of the NASA Tech House, including live-in test results, volume 1 [ NASA-TP-1564] 25 p0109 N80-11559 Performance of Ios Alamos solar Mobile/Modular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 M80 operation Home Unit no. 1
[LA-UR-78-2587] 25 p0126 M80-12577
Solar cooling performance in CSU Solar House 3
[COO-2858-23] 25 p0143 M80-13668
Computer program for assessing the economic feasibility of solar energy for single family residences and light commercial applications
[MASA-TM-78251] 25 p0156 M80-14501 [SOLAR/0811-79/01] 25 p0160 N80-14539 Thermal energy storage for solar applications: An overview [SERI/TP-34-089] 25 p0161 N80-14546 Hazardous properties and environmental effects of materials used in Solar Heating and Cooling (SHAC) technologies: Interim handbook
[DOE/EV-0028] 25 p0163 N80-14565
Performance of residential solar heating and Ohio exposition center solar home project
[PB-298541/4] 25 p0164 N80-14577
Performance of residential solar heating and cooling system with flat-plate and evacuated tubular collectors: CSU solar house 1 [COO-2577-16] 25 p0163 N80-14568 Realistic sizing of residential solar heating and cooling system with flat-plate and evacuated tubular collectors: CSU Solar House 1 [COO-2577-17] 25 p0176 N80-SOLAR PONDS (HEAT STORAGE) 25 p0176 N80-15616 cooling systems
[coo-2858-14]
Engineers guide to solar energy
[PB-297043/2] 25 p0163 N80-14569 Under ground thermal storage in the operation of solar ponds 25 p0164 N80-14574 25 p0077 A80-19471 Commercializing solar heating: A national Construction and initial operation of the strategy needed
[PB-297882/3] Miamisburg salt-gradient solar pond 25 p0164 N80-14575 [NLM-2626-OP] 25 p0161 N80-145
SOLAH POSITION
An electronic device for intermittent tracking ---25 p0161 N80-14541 Candidate thermal energy storage technologies for solar industrial process heat applications [NASA-TM-81380] of sun in solar collectors 25 p0171 N80-15560

25 p0027 A80-12782

SOLAR POWER SATELLITES SUBJECT INDEX

•	•
SOLAE POWER SATELLITES	The thermal design and analysis of an integrated
Earth benefits of solar power satellites	sodium boiler/receiver for solar energy conversion
25 p0038 A80-14791 Impacts of satellite power system technology	[ASME PAPER 79-WA/SOL-10] 25 p0067 A80-18569 Optimization and comparison strategies for solar
25 p0048 A80-17132	energy systems
Analysis of S-band solid-state transmitters for	[ASHE PAPER 79-WA/SOL-26] 25 p0067 A80-18573
the solar power satellite	Thermal energy utilization in the Mississippi
[NASA-CB-160320] 25 p0096 N80-10600 Solar power satellite system definition study,	County Community College Photovoltaic Project [ASME PAPER 79-WA/SOL-29] 25 p0068 A80-18575
phase 2.	Preliminary analysis of a total solar heating system
[NASA-CR-160377] 25 p0105 N80-11121	[ASME PAPER 79-WA/SOL-40] 25 p0069 A80-18583
Solar power satellite system definition study,	A solar thermal electric power plant for small
phase 2. Part 1: Midterm briefing [NASA-CR-160378] 25 p0105 M80-11122	communities [ASME PAPER 79-WA/SOL-7] 25 p0069 A80-18584
Satellite Power System (SPS): An overview of	Dispersed power systems and total energy
prospective organizational structures in the	[SAND-78-2006C] 25 p0096 N80-10608
solar satellite field [TID-29094] 25 p0154 N80-14478	Safety and environmental implications DOE/Sandia
Solar power satellite system definition study.	Midtemperature Solar Systems Test Facility [SAND-78-2292C] 25 p0097 N80-10609
Volume 1: Executive summary	Preliminary analysis of a total solar heating system
[NASA-CH-160442] 25 p0167 N80-15195	[COO-4546-4] 25 p0101 N80-10653
SOLAR PROPULSION  Selective ray-absorption as means of increasing	Sandia Laboratories operational experience with small heat engines in solar thermal power systems
the efficiency of a high-temperature sclar	[SAND-78-2163C] 25 p0 146 N80-13693
energy system for Stirling engine and solar	SERAPH implementation plans
thermal rocket	[SERI/BR-34-152] 25 p0172 N80-15570
25 p0036 A80-14597 SOLAE RADIATION	Methodology for determining the configuration of the optimum solar total energy system
Insolation modeling overview	[SAND-79-0422] 25 p0172 N80-15574
25 p0C2C A80-12428	Application analysis of solar total energy systems
Validation of computer models for predicting radiation levels on tilted surfaces	to the residential sector. Volume 4: Market
25 p0020 A80-12429	penetration [ALC-3787-4] 25 p0174 N80-15597
Solar energy availability over India for maximum	SOLEHOIDS
utilisation 25 p0023 A80-12740	Recent developments in linear theta-pinch and laser-heated solenoid research
Effect of concentrated sunlight on the various	25 p0055 A80-17825
parameters of the p-n junction solar cell 25 p0025 A80-12764	SOLID BLECTRODES  Evaluátion of sintered SiC as an electrode and
Calculation of monthly mean solar radiation for	container material in sodium/sulfur cells
horizontal and inclined surfaces	25 p0035 A80-14588
25 p0028 A80-12817 Graphical representation of TMY solar radiation	MHD boundary layer of the seeded combustion gas near cold electrodes
availability for one- and two-axis solar	25 p0047 A80-17004
collectors	SOLID STATE DEVICES
[SAND-79-0418] 25 p0100 N80-10640 Solar-climatic statistical study. Summary report,	150-kV, 80-A solid state power supply for neutral beam injection
volume 1	25 p0080 A80-19617
[HCP/T4016-1] 25 p0132 N80-12707	SOLID WASTES
SOLAR REFLECTORS Structure of an averaged statistical pencil of	Experimental techniques and mathematical models in the study of waste pyrolysis and gasification
rays reflected from a heliostat	25 p0001 A80-10028
25 p0051 A80-17247	Resource recovery systems costs
Use of adjustable flat mirrors with flat-plate collectors	25 p0001 A80-10029 Energy conservation through recycling
[AIAA PAPER 80-0294] 25 p0063 A80-18299	25 p0003 A80-10842
Space light - Space industrial enhancement of the	Hydrogen - The Denver story
solar option 25 p0073 A80-18797	25 p0038 A80-14709 The uncertain costs of waste disposal and resource
Summary report of the Solar Reflective Baterials	recovery
Technology Workshop	25 p0043 A80-16150
[PNL-2763] 25 p0097 N80-10613 SOLAR SEMSORS	Gasification of solid waste in a fluidized bed reactor with circulating sand
An electronic device for intermittent tracking	25 p0074 A80-18868
of sun in solar collectors	The basics of magnetic separation as applied to
SOLAR SINULATION 25 p0027 A80-12782	municipal solid waste reclamation plants
New concept for a system suitable for solar	25 p0074 A80-18871 Methane recovery from sanitary landfills; gas
simulation	recovery system installation and testing
25 p0083 A80-19976 SOLAR SPECTRA	[PB-296622/4] 25 p0107 N80-11254 Characterization of solid-waste conversion and
Solar absorption spectra of PbS-Al and PbSe-Al	cogeneration systems
systems	[LBL-7883] 25 p0141 N80-13648
25 p0027 A80-12781 Brightness distribution over the solar disk in	Commercialization strategy report for energy from
solar reflectors	urban wastes [TID-28852-DRAFT] 25 p0158 N80-14521
25 p0050 A80-17243	Overview of the Department of Energy's research,
SOLAR TERRESTRIAL INTERACTIONS Solar collectors as energy converters	development and demonstration program for the
25 p0036 A80-14670	recovery of energy and materials from urban waste [CONF-790373-1] 25 p0163 N80-14562
SOLAR TOTAL ENERGY SYSTEMS	Management of coal preparation fine wastes without
Industrial solar total energy systems 25 p0017 A80-11987	disposal ponds [PB-299100/8] 25 p0180 N80-15691
A new solar thermal electricity/cooling generation	[PB-299100/8] 25 p0180 N80-15691 SOLIDIFIED GASES

25 p0174 N80-15597 near theta-pinch and esearch 25 p0055 A80-17825 C as an electrode and odium/sulfur cells 25 p0035 A80-14588 seeded combustion gas 25 p0047 A80-17004 power supply for neutral 25 p0080 A80-19617 nd mathematical models in lysis and gasification 25 p0001 A80-10028 costs 25 p0001 A80-10029 gh recycling 25 p0003 A80-10842 25 p0038 A80-14709 ste disposal and resource 25 p0043 A80-16150 te in a fluidized bed g sand 25 p0074 A80-18868
paration as applied to
ecclamation plants
25 p0074 A80-18871
itary landfills; gas ation and testing 25 p0107 N80-11254 -waste conversion and 25 p0141 N80-13648 By report for energy from 25 p0158 N80-14521 at of Energy's research, ration program for the materials from urban waste 25 p0163 N80-14562 ation fine wastes without disposal ponds
[PB-299100/8]
SOLIDIFIED GASES 25 p0180 N80-15691 Ablation of solid hydrogen in a plasma 25 p0050 A80-17218 Are large concentration of atomic H storable in tritium-impregnated solid in H2 below 0.10 K 25 p0072 A80-18728

[AIAA PAPEE 80-0296] 25 p0063 A80-18300 Economic comparisons of solar and fossil total energy systems for industrial applications [ASME PAPEE 79-WA/TS-6] 25 p0065 A80-18552

CATTELOT TITLE	
Non-linear theory of collective processes in	Standby conservation plan no. 2: Emergency
Non-linear theory of collective processes in laser-pellet interaction and soliton generation	pullding temperature restrictions. Economic
25 p0057 A80-17870	analysis [DOE/ERA-0047] 25 p0112 N80-11593
SOUTHERN CALIFORNIA	Energy savings for a solar heated and cooled
Unleaded gasoline shortages and fuel switching -	building through adaptive optimal control
The potential impact in Southern California	[LA-UR-78-2986] 25 p0 115 N80-11616
25 p0004 A80-11019	Investigation of the applicability of technical
SPACE	systems utilizing solar energy for the heat
District space heating potential of low temperature hydrothermal geothermal resources in	supply of buildings
the southwestern United States using	[BMFT-FB-T-78-48] 25 p0116 M80-11630 Optimization of photovoltaic/thermal collector
computerized simulation	heat pump systems
[NMEI-10-1] 25 p0172 N80-15582	[COC-4577-7] 25 p0124 N80-12566
SPACE ERECTABLE STRUCTURES	Standby conservation plan no. 2: Emergency
Weight optimization of ultra large space structures [SAWE PAPER 1301] 25 p0086 A80-20641	building temperature restrictions. Authorities:
[SAWE PAPER 1301] 25 p0086 A80-20641 SPACE HEATING (BUILDINGS)	Need, rationale, operation [DCE/ENA-0048] 25 p0126 N80-12582
Solar availability for winter space heating - An	[DCE/ERA-0048] 25 p0126 N80-12582 Emissions assessment of conventional stationary
analysis of SOLMET data, 1953 to 1975	combustion systems. Volume 1: Gas- and
25 p0006 A80-11370	oil-fired residential heating sources
Commercial building and industrial applications	[PB-298494/6] 25 p0131 N80-12637
for solar energy	Case study of the Brownell low energy requirement
25 p0017 A80-11985 Passive and active residential solar heating: A	house · [BNL-50968] 25 p0142 N80-13651
comparative economic analysis of select designs	25 p0142 N80-13651 Multi-use geothermal energy system with
25 p0021 A80-12435	augmentation for enhanced utilization.
A high performance porous flat-plate solar collector	Non-electric application of geothermal energy in
25 p0021 A80-12438	Susanville, California
Design criteria in PCM wall thermal storage Phase Change Materials	[DOE/ET-248447/1] 25 p0142 N80-13660
25 p0C21 A80-12440	Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706
Absorption heat pumps for solar space heating	[CONF-790446-6] 25 p0147 N80-13706 The solar in Federal buildings demonstration program
systems	[PB-298535/6] 25 p0151 N80-14279
25 p0036 A80-14672	Development, testing and certification of the
On a calculation procedure for a heat accumulator	sigma research, maxi-therm-s-101 thermosyphon
in a solar heating system 25 p0044 A80-16630	heat exchanger
Sensitivity of direct gain space heating	[NASA-TM-78245] 25 p0156 N80-14499 Commercializing solar heating: A national
performance to fundamental parameter variations	strategy needed
25 p0060 A80-18128	[PB-297882/3] 25 p0164 N80-14575
Solar heating system performance estimation using	Measurement of energy to heat houses: Initial study
sinusoidal inputs	[PB-299448/2] 25 p0170 N80-15304
25 p0061 A80-18130 Electric heat - The right price at the right time	Low temperature thermal energy storage: A
25 p0062 A80-18184	state-of-the-art survey [SERI/RB-54-164] 25 p0 172 N80-15583
A simplified procedure for performance of solar	[SERI/RR-54-164] 25 p0172 N80-15583 Fuel utilization in residences
systems with heat pumps	[EPRI-EA-894] 25 p0175 N80-15604
[ASHE PAPER 79-WA/SOL-23] 25 p0065 A80-18555	SPACE PROGRAMS
Addition of solar air heaters to a pre-engineered metal building	Toward the endless frontier: History of the
[ASME PAPER 79-WA/SOL-33] 25 p0066 A80-18566	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994
Operational and parameter studies of a	[GPO-35-120] 25 p0 181 N80-15994 SPACE SHUTTLE ORBITERS
solar-powered absorption cycle system with	Cooling a radioisotope power source in the Space
internal latent energy storages	Shuttle Orbiter
[ASME PAPER 79-WA/SOL-27] 25 p0067 A80-18568	[ASME PAPER 79-ENAS-44] 25 p0039 A80-15267
The simulation of building heat transfer for passive solar systems	PEP solar array definition study
[ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574	[NASA-CR-160398] 25 p0138 N80-13622 SPACE TRANSPORTATION SYSTEM
Thermal energy utilization in the Mississippi	PEP solar array definition study
County Community College Photovoltaic Project	[NASA-CR-160398] 25 p0138 N80-13622
[ASME PAPER 79-WA/SOL-29] 25 p0068 A80-18575	SPACECRAFT POWER SUPPLIES
Evaluation of a solar heating system installed in the LSO Field House	Development of silver-hydrogen cells
[ASHE PAPER 79-WA/SOL-31] 25 p0068 A80-18576	25 p0010 A80-11843
An evaluation of thermal energy storage for	Development of silver-hydrogen cells
residential air conditioning applications	25 p0010 A80-11844 Development of space quality silicon solar cells
[ASME PAPER 79-WA/HT-31] 25 p0071 A80-18631	at B.A.R.C.
Residential heat loss mapping of Parmington, New	25 p0025 A80-12762
Mexico using airborne thermal scanning 25 p0084 A80-20242	A theoretical method for estimation of power loss
Passive solar energy programs and plans	due to mismatch in solar cell I-V characteristics
[GPO-36-211] 25 p0095 N80-10599	25 p0025 A80-12763 Reliability studies on thin film solar cells for
Economic performance of passive solar heating: A	satellite application
preliminary analysis	25 p0 027 A80-12775
[LA-UR-78-2861] 25 p0100 N80-10645 Optimal control studies of a solar heating system	Possibility of conversion of solar corpuscular
[LA-UR-78-2556] 25 p0100 N80-10646	radiation energy into electrical energy
The Building Loads Analysis System Thermodynamics	25 p0085 A80-20495 General-purpose heat source development. Phase 1:
(BLAST) program, version 2.0 Input booklet	Design requirements.
for predicting energy consumption based on	[LA-7385-SR] 25 p0114 N80-11608
structural size and meteorological data	PEP solar array definition study
[AD-A072435] 25 p0107 N80-11259 Solar heating and cooling systems design and	[NASA-CR-160398] 25 p0138 N80-13622
development	Baseline design of the thermoelectric reactor space power system
[NASA-CR-150873] 25 p0109 N80-11560	[LA-UR-79-1242] 25 p0149 N80-13906
	== 1: 1: 200 10000

SPACECRAFT RADIATORS SUBJECT INDEX

SPACECRAFT RADIATORS	Whirling response and stability of flowibly
Cooling a radioisotope power source in the Space	Whirling response and stability of flexibly mounted, ring-type flywheel systems
Shuttle Orbiter	[SAND-78-7073] 25 p0116 N80-11623
[ASME PAPER 79-ENAS-44] 25 p0039 A80-15267 SPACECRAPT SHIRLDING	Recent spin test of two composite wagon wheel flywheels
Solar panels exposed to cosmic rays	[SAND-79-1669C] 25 p0140 N80-13640
25 p0008 A80-11825 SPAIN	Sandia composite-rim flywheel development [SAND-78-1865C] 25 p0 177 N80-15624
SSPS project - Two solar power plants in Spain	[SAND-78-1865C] 25 p0 177 N80-15624 SPRAYED COATINGS
25 p0032 A80-13180	Optical and electrical investigations on annealed
SPATIAL DISTRIBUTION Spatial and depth distribution of deuterium,	indium oxide selective coatings produced by spray pyrolysis
oxygen, and limiter materials on the liner of	25 p0023 A80-12747
TFR 400 25 p0082 A80-19682	STABILITY TESTS Whirling response and stability of flexibly
Nonequilibrium thermodynamics of fuel cells - Heat	mounted, ring-type flywheel systems
release mechanisms and voltage 25 p0084 A80-20274	[SAND-78-7073] 25 p0116 N80-11623 STABILIZED PLATFORMS
SPECIMEN GROWETHY	Electricity generation from jet-stream winds
A seasonally adjusted concentrating collector made	25 p0007 A80-11644
of mirror strips 25 p0024 A80-12750	STAINLESS STEELS  Materials testing for central receiver
SPECTRAL ENERGY DISTRIBUTION	solar-thermal power systems
Solar cell spectral response characterization 25 p0037 A80-14685	[TID-29443] 25 p0146 880-13695 STANDARDS
Brightness distribution over the solar disk in	SABICS: Input data preparation Solar Array
solar reflectors	Manufacturing Industry Costing Standards
SPECTRAL REFLECTANCE 25 p0050 A80-17243	[NASA-CB-162421] 25 p0110 N80-11570 Interim structural design standard for solar
Wave absorption and superreflectivity of laser	energy applications, phases 1 and 2 boiler
plasmas due to electromagnetic structure resonances	and pressure vessel code [SAND-79-8183] 25 p0146 N80-13698
25 p0057 A80-17871	Measurements and standards for recycled oil - 2
SPECTRAL SENSITIVITY A new approach to low cost large area selective	[PB-299951/4] 25 p0167 H80-15275 STATIC STABILITY
surfaces for photothermal conversion	On the weathervaning of wind turbines
25 p0003 A80-10845 Textured silicon - A selective absorber for solar	25 p0047 A80-16952
thermal conversion	STATISTICAL ANALYSIS Solar-climatic statistical study. Summary report,
25 p0034 A80-13980	volume 1
Investigation of absorptive and radiative characteristics of an ideal selective surface	[HCP/T4016-1] 25 p0132 H80-12707 Solar-climactic statistical study windpower
for solar energy absorbers	utilization and solar energy conversion
25 p0044 A80-16632 Selective black nickel coatings on zinc surfaces	[HCP/T4016-01/2] 25 p0149 N80-13747 STATISTICAL DISTRIBUTIONS
by chemical conversion for high solar energy	Pederal Energy Data System (PEDS) statistical
absorption 25 p0060 <b>180-1812</b> 6	summary update [DOE/EIA-0192] 25 p0177 N80-15630
A simplified technique for comparing the	STATISTICAL WEATHER PORECASTING
effectiveness of collector absorber coatings 25 p0061 A80-18133	Solar cooling performance predictions via
Cobalt oxide as a spectrally selective material	stochastic weather algorithms 25 p0020 A80-12430
for use in solar collectors	The estimation of the parameters of the Weikull
25 p0086 A80-20719 The spectral selectivity of conducting micromeshes	wind speed distribution for wind energy utilization purposes
as solar energy absorbers	25 p0042 A80-16086
25 p0087 A80-20720 Spectrally selective surfaces with coatings	STEADY STATE Steady-state currents driven by collisionally
comprised of ultrafine metal particles solar	damped lower-hybrid waves in plasma
collectors [AED-CONF-78-212-004] 25 p0115 N80-11620	25 p0084 A80-20157
SPECTROSCOPY	Calculation of steam generation with parabolic
Photothermal conversion surface measurements using photoacoustic and photothermal spectroscopies	solar collectors 25 p0039 A80-15328
[IS-M-202] 25 p0129 N80-12611	Superheated steam generation in a Fresnel lens
SPECTRUM ANALYSIS Multichannel Thomson scattering system for the	concentrating collector [ASME PAPER 79-WA/SOL-21] 25 p0067 A80-18567
tokamak TFR based on two-detector spectrum	[ASME PAPER 79-WA/SOL-21] 25 p0067 A80-18567 Transient-pressure analysis in geothermal steam
'analyzers	reservoirs with an immobile vaporizing liquid
25 p0060 A80-18111 SPEED CONTROL	phase 25 p0076 A80+19209
Wind energy conversion system with electromagnetic	Development of the steam-iron process for hydrogen
stabiliser 25 p0031 A80-13004	production, 9010 [FE-2435-32] 25 p0150 N80-14258
Controllable d.c. power supply from wind-driven	Characterization of operating conditions for
self-excited induction machines 25 p0075 A80-19031	gas/water heat recovery steam generators [CRNL/TM-6622] 25 p0176 N80-15620
SPHERICAL TANKS	Technical support for open-cycle MHD program
Application of packed beds to energy storage use of latent heat of fusion	project planning and systems analysis of a magnetohydrodynamic/steam power system
25 p0 121 N80-12353	[ANL/MHD-78-11] 25 p0181 N80-15942
SPIN TESTS Whirling response and stability of flexibly	STRAM TURBINES Novel power generation cycles using coal gas
mounted, ring-type flywheel systems	[ASME PAPER 79-WA/ENER-5] 25 p0071 A80-18645
[ASME PAPER 79-DET-71] 25 p0041 A80-15729  Lateral and tilt whirl modes of flexibly mounted	Steam turbines thermoelectric power generation [ANL/CES/TE-78-7] 25 p0095 N80-10502
flywheel systems for energy storage	Screening evaluation of novel power cycles
[SAND-78-7070] 25 p0115 N80-11622	integrated with gasification plants [EPRI-AF-1002] 25 p0096 #80-10605
	[

SUBJECT INDEX SULFIDES

STEEL STRUCTURES	The 10MW(e) solar thermal central receiver pilot
Long-term erosion monitoring of metallic conduits	plant: Heliostat foundation and interface
by ultrasonic pulse-echo techniques	structure investigation
components of coal gasification and liquefaction	[SAND-78-8180] 25 p0097 N80-10612 The Building Loads Analysis System Thermodynamics
pilot plants [CONF-790480-1] 25 p0167 N80-15259	(BLAST) program, version 2.0 Input booklet
STEELS	for predicting energy consumption based on
Microstructural objectives for high-temperature	structural size and meteorological data
alloys in advanced energy systems	[AD-A072435] 25 p0107 N80-11259
25 p0002 A80-10306	Interim structural design standard for solar energy applications, phases 1 and 2 boiler
Materials compatibility in liquid sodium [HECL-SA-1559] 25 p0119 N80-12147	and pressure vessel code
Energy conservation in the US economy from	[SAND-79-8183] 25 p0146 N80-13698
increased recycle of obsolete steel scrap	Weight minimization of sandwich type solar
[COO-2893-10] 25 p0159 N80-14524	collector panels
STELLARATORS	[SAND-78-2305C] 25 p0147 N80-13710
Heating, confinement and fluctuations in the CLEO stellarator	OTEC platform configuration and integration, appendixes to volume 2
25 p0055 A80-17826	[DOF/ET-4065/1-VOL-2-APP] 25 p0147 N80-13713
Current equilibrium and effective ion charge in	OTEC platform configuration and integation. Volume
L-2 stellarator plasma	3: Project plan
25 p0055 A80-17829	[DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714
Constant current and constant voltage excitation	Non-tracking inflated cylindrical solar concentrator
of large coils by flywheel-generator-converter for fusion reactors	[UCRL-82721] 25 p0159 N80-14528 A review of the economics of selected passive and
25 p0 C80 A80-19624	hybrid systems design concepts for solar
Study of current-driven magnetohydrodynamic	energy utilization
instability in the Heliotron-D device	[SEBI/TF-61-144] 25 p0161 N80-14547
25 p0084 A80-20159	Commercializing solar architecture
STILLS A cheap method of improving the performance of	[SERI/TP-62-113] 25 p0161 N80-14548 STRUCTURAL DESIGN CRITERIA
roof type solar stills	MDAC/Rocketdyne solar receiver: Design review
25 p0006 A80-11343	[SAND-78-8188] 25 p0097 N80-10616
STIRLING CYCLE	Methane recovery from sanitary landfills; gas
A pistonless Stirling engine - The traveling wave	recovery system installation and testing
heat engine 25 p0031 A80-13011	[PB-296622/4] 25 p0107 N80-11254
Selective ray-absorption as means of increasing	Executive summary: Mod-1 wind turbine generator analysis and design report
the efficiency of a high-temperature solar	[NASA-CR-159497] 25 p0109 N80-11558
energy system for Stirling engine and solar	Methodology for determining the configuration of
thermal rocket	the optimum solar total energy system
25 p0036 A80-14597	[SAND-79-0422] 25 p0172 N80-15574
Assessment of Stirling engine potential in total and integrated energy systems	STRUCTURAL ENGINEERING Battery Energy Storage Test (BEST) facility
[ANL/ES-76] 25 p014C N80-13636	[EPRI-EH-1005] 25 p0098 N80-10628
Assessment of the state of technology of	Report on Finnish technological activities
automotive Stirling engines	25 p0119 N80-11991
[NASA-CR-159631] 25 p0150 N80-13989	STRUCTURAL MEMBERS
Sintered silicon nitrode recuperator fabrication [NASA-CR-159706] 25 p0167 N80-15263	Preliminary materials assessment in solar demonstration systems
STORAGE BATTERIES	[ANL/EES-CP-30] 25 p0115 N80-11619
Zinc-bromine battery studies	STRUCTURAL PROPERTIES (GEOLOGY)
25 p0010 A80-11845	The Bullaren lineament, southwestern Sweden - A
Recent advances in zinc-bromine batteries	possible site for geothermal heat extraction
25 p0010 A80-11846 Hydrogen /Hydride/-air secondary battery	25 p0075 A80-19049 Computer software to calculate and map geologic
25 p0011 A80-11848	parameters required in estimating ccal
Hydrogen-powered vs. battery-powered automobiles	production costs
25 p0033 A80-13199	[EFRI-EA-674] 25 p0095 N80-10584
Electric and hybrid vehicles Book	STRUCTURAL STABILITY
25 p0041 A80-15658  Process storage systems for automobile propulsion.	Aeroelastic stability and response of horizontal axis wind turbine blades
Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings	25 p0032 A80-13116
[UCRL-52553-VOL-1] 25 p0 105 N80-10970	SUBSONIC PLOU
Lithium/metal sulfide battery development	High interaction subsonic MHD channel operation
[CONF-790538-10] 25 p0159 N80-14530	[AIAA PAPER 80-0022] 25 p0062 A80-18242
Advanced batteries for electric vehicles: A look at the future	SUGAR CARE Net energy analysis of alcohol production from
[CONF-790484-1] 25 p0159 N80-14531	sugarcane
STORAGE TABES	25 p0062 A80-18165
Optimal insulation of solar heating system pipes	Sugar crops as a source of fuels. Volume 1:
and tanks	Agricultural research
25 p0021 A80-12434 Experimental and numerical studies of liquid	[TID-29400/1] 25 p0093 N80-10395 Production of sugarcane and tropical grasses as a
storage tank thermal stratification for a solar	renewable energy source
energy system	[DOE/CS/5912-T1] 25 p0168 N80-15277
[COO-4479-2] 25 p0101 N80-10655	SULFATES
STRUCTURAL ANALYSIS	Process design of the LASL bismuth sulfate
Analysis of field test results for single-axis-tracking solar collector foundations	thermochemical hydrogen cycle [LA-UR-79-1256] 25 p0 129 N80-12605
[SAND-79-7023] 25 p0173 N80-15586	Western energy sulfate/nitrate monitoring network
STRUCTURAL DESIGN	[PB-299238/6] 25 p0180 M80-15685
The design of a thin walled toroidal vacuum	SULFIDES
chamber for a large RFP experiment Reversed	Studies on the Ca-CaCrO4 and Li-Al-FeS2 systems
Field Pinch 25 p0082 A80-19676	for thermal battery applications 25 p0012 A80-11854
25 2002 200 17070	Utilization of transition metal phosphorus
	trisulphides as battery cathodes
	25 p0012 A80-11858

The electrochemical characteristics of iron sulphide in immobilized salt electrolytes	SUPERCOBDUCTIVITY Superconductivity for mirror fusion
25 p0013 A80-11862 Review of industrial participation on the ANL	[UCRL-81693] 25 p0181 N80-15933 SUPERCONDUCTORS
lithium/iron sulfide battery development program for energy storage and electric vehicles	Conduction-type MHD generator with back-and-forth motion of the hybrid working material
[CONF-780852-1] 25 p0164 N80-14573 SULFONATES	25 p0030 A80-12898 Superconducting composites fabrication and
Tertiary oil recovery processes research at the University of Texas	properties 25 p0040 A60-15511
[BETC-0001-1] 25 p0108 N80-11544 SULFOR	Preparation of superconducting coil through composite
The distribution of sulfur and organic matter in various fractions of peat - Origins of sulfur in	25 p0040 A80-15512 International activities: The fiscal year 1978
coal 25 p0074 A80-18833	survey of international programs at NEL
Fluidized-bed combustion of high sulfur coals	SUPERBIGH PREQUENCIES
[METC/RI-79/4] 25 p0093 N80-10386 SULFUE CHLORIDES	Analysis of S-band solid-state transmitters for the solar power satellite
Projected mechanism for thionyl chloride and sulphuryl chloride cathode reactions	[NASA-CR-160320] 25 p0096 N80-10600 SUPPERSONIC PLOW
25 p0012 A80-11856 SULFUR COMPOUNDS	Mach 3 hydrogen external/base burning [AIAA PAPEB 80-0280] 25 p0077 A80-19311
Coal sulfur measurements [PB-299575/1] 25 p0169 N80-15294	SUPPLYING
SULFUR DIOXIDES	Current U. S. petroleum situation and short-term supply/demand outlook
Heat generation in Li/SOC12 cells 25 p0012 A80-11855	[DOE/EIA-0184/5] 25 p0138 N80-13607 The 1985, 1990 and 1995 midterm energy market
The use of oil shale for SO2 emission control in atmospheric-pressure fluidized-bed coal combustors	model results under three scenarios of Fuel Use Act regulations
25 p0064 A80-18505	[DOE/EÎA-0182/2] 25 p0173 N80-15592 Energy supply and demand in the short term: 1979
<pre>Bffect of concentrated sunlight on the various parameters of the p-n junction solar cell</pre>	and 1980
25 p0025 A80-12764	[DOE/EIA-0184/4] 25 p0174 N80-15593 SURFACE DIFFUSION
Space light - Space industrial enhancement of the solar option	Copper diffusion and photovoltaic mechanisms at Cu-CdS contact
25 p0073 A80-18797 Solar access law. Protecting access to sunlight	SURFACE GEOMETRY 25 p0033 A80-13204
for solar energy systems [PB-296532/5] 25 p0117 N80-11633	Validation of computer models for predicting radiation levels on tilted surfaces
Combined effects of polycyclic aromatic hydrocarbons and sunlight on Chinese hamster	25 p0020 A80-12429 Truncation of nonimaging cusp concentrators
V79 cells [CONF-790447-4] 25 p0131 N80-12631	solar collector geometry
Design and performance of silicon solar cells	25 p0029 A80-12824 Solar concentrators using vacuum-contoured
under concentrated sunlight [SAND-79-1165C] 25 p0172 N80-15577	surfaces for tracking [AIAA PAPER 80-0399] 25 p0077 A80-19326
SUPERCONDUCTING MAGNETS Developments for the high voltage test of pulsed	SURFACE PROPERTIES  Textured silicon - A selective absorber for solar
superconducting coils used in tokamak switches 25 p0081 A80-19655	thermal conversion 25 p0034 A80-13980
Space applications of superconductivity - High field magnets	Selective ray-absorption as means of increasing the efficiency of a high-temperature solar
25 p0C84 A80-20128 Superconducting magnetic energy storage for	<pre>energy system for Stirling engine and solar thermal rocket</pre>
electric power system dynamic stabilization [LA-UR-79-1220] 25 p016C N80-14535	25 p0036 A80-14597 Investigation of absorptive and radiative
Superconductivity for mirror fusion	characteristics of an ideal selective surface
SUPERCONDUCTING POWER TRANSMISSION	for solar energy absorbers 25 p0044 A80-16632
Stability of a system of coaxial superconducting shells	Spectrally selective surfaces with coatings comprised of ultrafine metal particles solar
25 p0018 A80-12027 Effect of microwave radiation on the	collectors [AED-CONF-78-212-004] 25 p0115 N80-11620
<pre>voltage-current characteristics of a variable-thickness Josephson microbridge</pre>	SURPACE REACTIONS Cadmium electrodes with improved surface
25 p0035 A80-14430 Superconducting composites fabrication and	cbaracteristics for alkaline storage batteries 25 p0009 A80-11838
properties 25 p0040 A80-15511	Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks
Preparation of superconducting coil through composite	SURFACE VEHICLES 25 p0079 A80-19600
25 p0040 A80-15512 The 50kA flux pump for the superconducting	New technology and vehicle operation on roadways
transmission line test bed	SUBPACE WATER 25 p0037 A80-14702
[LA-6953-MS] 25 p0094 N80-10443 Some dc superconducting cables for underground	Using surface waters for supplementing injection at the Salton Sea Geothermal Field (SSGF),
power transmission [LA-UR-79-1057] 25 p0107 N80-11348	Southern California [UCRL-83011] 25 p0 124 N80-12561
Wave propagation in a dc superconducting cable. Part 1: Analysis	SURVEYS A survey of electric and hybrid vehicle simulation
[LA-UR-79-226] 25 p0151 N80-14346 Partial discharge performance of lapped plastic	programs [NASA-CR-162457] 25 p0118 N80-11954
insulation for superconducting power transmission cables and the dielectric strength	SWEDEN The Bullaren lineament, southwestern Sweden - A
of supercritical helium gas [BNL-24779] 25 p0170 N80-15346	possible site for geothermal heat extraction 25 p0075 A80-19049

SUBJECT INDEX SYSTEMS AWALTSIS

Effects of energy policy on industry	LASL thermochemical hydrogen program status on
[USFFE-1978-8] 25 p0129 N80-12604 SWITCHING CIRCUITS	October 31, 1978 fusion-synfuel [LA-UR-78-2895] 25 p0120 N80-12197
Dynamic suppression of ionization instability	Status of the PEATGAS process
in MHD devices of Paraday and Hall types 25 p0043 A80-16484	[CONF-781045-3] 25 p0120 N80-12199 Environmental aspects of alternative fuels
Ignitron switching problems associated with a	utilization for highway vehicles
large reversed field pinch experiment	[UCBL-81841] 25 p0120 M80-12201 Environmental analysis of synthetic liquid fuels
25 p0081 180-19629 Self-reconfiguring solar cell system	shale oil, coal liquefaction, and biomass
[NASA-CASE-LEW-12586-1] 25 p0153 N80-14472	production of ethanol
SYNCHRONOUS MOTORS Linear synchronous motor development for urban and	[DOE/FV-0044] 25 p0134 880-13279 Research and development of rapid hydrogenation
rapid transit systems	for coal conversion to synthetic motor fuels
25 p0062 A80-18167 Induction and synchronous machines for vertical	(riser cracking of coal) [FE-2307-46] 25 p0134 N80-13280
axis wind turbines	Research and development of an advanced process
[SAND-79-7017] 25 p0144 N80-13675	for conversion of coal to synthetic gasoline and other distillate motor fuels
SYNTHAME Low/medium BTU coal gasification - Perspective of	[FE-1800-33] 25 p0135 N80-13287
the gas industry	Research and development of an advanced process for conversion of coal to synthetic gasoline and
25 p0015 A80-11969 Gasoline's alternatives are feasible	other distillate motor fuels
25 p0034 A80-13225	[PE-1800-30] 25 p0135 N80-13291
Environmental assessment report: Lurgi coal qasification systems for SNG	Synfuel (hydrogen) production from fusion power [LA-UR-79-1115] 25 p0136 N80-13296
[PB-298109/0] 25 p0120 N80-12204	Pilot plant gasification test on biomass fuels
SYNTHETIC PUELS	[PB-299077/8] 25 r0151 %80-14272 High temperature electrolysis synthetic fuel
Hydrogen - The fuel of the future Russian book 25 p0002 A80-10349	production
Kentucky's coal-based chemical/energy park	[BNL-26331] 25 p0167 N80-15227 Report of the Alcohol Fuel Policy Review
25 p0013 A80-11954 Coal liquefaction - An international perspective	[DOF/PE-0012] 25 p0169 N80-15290
25 p0015 A80-11964	Conversion of coal-based methanol to ethylene and
Recent developments in coal liquefaction in the United States	a gaseous fuel [PB-301256/4]
25 p0015 A80-11966	SYSTEM EFFECTIVENESS
SRC solids - Boiler fuel and building block Solvent Refined Coal	Effectiveness - NTO charts for latent heat storage units heat exchangers
25 p0C15 A80-11967	[ASME PAPER 79-WA/SOL-16] 25 p0066 A80-18561
SRC solids - A preferred compliance boiler fuel Solvent Refined Coal	RAPAD - Real-time Accurate Performance Analysis of Data for performance estimation of wind
25 p0015 A80-11968	energy conversion system
Fuels from marine biomass 25 p0045 A80-16656	[ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565 Residential solar heat pump systems - Thermal and
Can alternative energy resources be brought into	economic performance
large-scale use in the United States by the year	[ASME PAPER 79-WA/SOL-25] 25 p0070 A80-18591
2000 25 pố048 A80-17128	SYSTEMS ANALYSIS  Preliminary analysis of a total solar heating system
Two-dimensional heating analysis of fusion	[ASME PAPER 79-WA/SOL-40] 25 p0069 A80-18583
blankets for synfuel production 25 p0C82 A80-19665	Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference,
Molten salt pyrolysis of later for hydrocarbon	University of Pittsburgh, Pittsburgh, Pa., April
fuel production [NASA-CASE-NPO-14315-1] 25 p0092 N80-10361	25-27, 1979. Part 2 - Systems and control 25 p0087 A80-20862
Coal conversion processes and analysis	Computer analysis of grids currently used for
methodologies for synthetic fuels production	CdS/Cu2S solar cells 25 p0089 A80-20893
technology assessment and economic analysis of reactor design for coal gasification	Satellite Power Systems (SPS) concept definition
[NASA-CR-161322] 25 p0092 N80-10379	study. Volume 4: SPS point design definition [NASA-CR-150683] 25 p0119 N80-12106
Assessment of synfuel transportation to year 2000 [PNL-2768] 25 p0092 N80-10382	[NASA-CR-150683] 25 p0119 N80-12106 Systems Analysis and testing (SAT) program
Sugar crops as a source of fuels. Volume 1:	[SERI/PR-35-313] 25 p0124 N80-12565
Agricultural research [TID-29400/1] 25 p0093 N80-10395	Solar cooling performance in CSU Solar House 3 [COC-2858-23] 25 p0143 N80-13668
Biomass energy enhancement: A report to the	OTEC platform configuration and integration,
President's Council on Environmental Quality solar heat gasification	executive summary [DOE/ET-4065/1] 25 p0147 N80-13711
[PB-296624/0] 25 p0094 N80-10396	Satellite Power System (SPS): An overview of
Energy and economic assessment of anaerobic digesters and biofuels for rural waste management	prospective organizational structures in the solar satellite field
[PB-296523/4] 25 p0094 N80-10398	[TID-29094] 25 p0154 N80-14478
Waste utilization as an energy source. Citations	Analysis of remote site energy storage and qeneration systems systems analysis of solar
from the International Aerospace Abstracts Data Base	energy conversion and windpower utilization
[NTIS/PS-79/0765/2] 25 p0102 N80-10667	energy storage systems
One- and two-dimensional heating analyses of fusion synfuel blankets	[AD-A074869] 25 p0156 N80-14504 Energy analysis of the basic materials utilized in
[BNL-NUREG-25635] 25 p0104 N80-10922	electric power transmission systems
Research and development of rapid hydrogenation for coal conversion to synthetic motor fuels	[HCP/T5043-01] 25 p0157 N80-14510 Decentralized solar photovoltaic energy systems
(riser cracking of coal)	[LA-7866-TASE] 25 p0171 N80-15565
[FE-2307-38] 25 p0106 N80-11249 Methane recovery from sanitary landfills; gas	Design of photovoltaic systems for residential applications in the United States
recovery system installation and testing	[SAND-78-2186C] 25 p0171 N80-15566
[PB-296622/4] 25 p0107 N80-11254	MARKAL: A multiperiod linear-programming model for energy systems analysis (BNL version)
Department of Energy fossil energy equipment development programs	[BNL-26390] 25 p0178 N80-15634
[CONF-790405-14] 25 p0112 N80-11590	

Solar mechanical energy storage program overview	TARS
and systems analysis results	Analysis of tarry fractions in emissions resulting
[SAND-79-1642C] 25 p0 178 N80-15637	from low temperature oxidation of brown coal
Technical support for open-cycle MHD prcgram	25 p0007 A80-1144
project planning and systems analysis of a	TASKS
magnetohydrodynamic/steam power system	Development of the Rocky Mountain Energy and
[ANL/MHD-78-11] 25 p0 181 N80-15942	Environmental Technology Center: A preliminary
SYSTEMS COMPATIBILITY The compatibility of wind and solar technology	analysis
with conventional energy systems	[ORAU-158] 25 p0179 N80-1567
25 p0008 A80-11828	Inertial confinement fusion at NRL
SYSTEMS ENGINEERING	25 p0056 A80-1786
Area load-frequency control software package	Optimization of stabilized imploding liner fusion
for electric power system operation	reactors
25 p0022 A80-12735	25 p0079 A80-1959
Design of the International Energy Agency 500 kWe	TECHNOLOGICAL PORECASTING
distributed-collector solar thermal-electric	Models of worldwide energy demand and consumption
powerplant [ASME PAPER 79-WA/SOL-6] 25 p007C A80-18592	25 p0002 A80-1022
OIEC - Solar energy from the sea	United States energy alternatives to 2010 and beyond - The CONAES study
25 p0085 A80-20424	25 p0008 A80-1182
A thermodynamic assessment of OTEC open-cycle	Review of scenarios of future U.S. energy use
power systems	25 p0009 A80-1183
25 p0088 A80-20886	Overview of division of energy storage program
Analysis of a LiCl open-cycle absorption air conditioner which utilizes a packed bed for	Department of energy
regeneration of the absorbent solution driven by	25 p0016 A80-1197 Near-term prospects for solar industrial process
solar heated air	heat term prospects for solar industrial process
[COO-4546-1] 25 p0101 N80-10652	25 p0018 480-1198
Methane recovery from sanitary landfills; gas	Fuel cell sesquicentennial
recovery system installation and testing	25 p0033 A80-1322
[PB-296622/4] 25 p0107 N80-11254	The helium question future domestic
Executive summary: Mod-1 wind turbine generator analysis and design report	consumption vs storage of current natural gas derived supplies
[NASA-CR-159497] 25 p0109 N80-11558	25 p0034 180-1358
Architectural concerns in solar system design and	The role of coal in the world energy picture up to
installation	the year 2000 - Reserves, resources, and
[SOLAR/0801-79-01] 25 p0129 N80-12607 Design and development of a 30 watt solid polymer	availability from the Western European viewpoint
electrolyte fuel cell power source fueled with	25 p0040 A80-1562 Global perspectives and options for long-range
calcium hydride	energy strategies
[AD-A071157] 25 p0139 N80-13625	25 p0048 A80-1713
Systems engineering for power, program report	Impacts of satellite power system technology
[DOE/ET-0012/2-REV] 25 p0140 M80-13637 OTEC platform configuration and integration.	25 p0048 A80-1713
Volume 1: Systems engineering and integration	Waves, currents, tides - Problems and prospects 25 p0049 A80-1713
[TID-29418] 25 p0142 N80-13655	Multirole cargo aircraft options and configurations
Photovoltaic systems. Program summary	economic analysis
[DOE/ET-0019/2] 25 p0146 N80-13691	[NASA-TM-80177] 25 p0105 N80-1105
High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263	Silicon materials outlock study for 1980-1985
[ANL/CES/TE-79-2] 25 p0 150 N80-14263 solar thermal rower systems advanced solar thermal	calendar years [NASA-CR-162541] 25 p0155 N80-1449;
technology project, advanced subsystems	[NASA-CR-162541] 25 p0155 N80-1449: Advanced batteries for electric vehicles: A look
development	at the future
[NASA-CR-162546] 25 p0155 N80-14491	[CONF-790484-1] 25 p0159 N80-1453
Engineering concerns in solar system design and	TECHNOLOGY ASSESSMENT
operation [SOLAR/0811-79/01] 25 p0160 N80-14539	A policy-sensitive model of technology assessment
[SOLAR/0811-79/01] 25 p0160 N80-14539 Ohio exposition center solar home project	25 p0004 A80-11140 Energy technology VI: Achievements in perspective:
[PB-298541/4] 25 p0164 N80-14577	Proceedings of the Sixth Conference, Washington,
Solar power satellite system definition study.	D.C., February 26-28, 1979
Volume 1: Executive summary	25 p0013 A80-11953
[NASA-CR-160442] 25 p0167 N80-15195 Coal sulfur measurements	Hydrogen - A means of integrating competing
[PB-299575/1] 25 p0169 N80-15294	technology into a unified energy system
Design of photovoltaic systems for residential	25 p0014 A80-11955 Overview of division of energy storage program
applications in the United States	Department of energy
[SAND-78-2186C] 25 p0 171 N80-15566	25 p0016 A80-11979
Methodology for determining the configuration of	Flywheels for energy storage
the optimum solar total energy system [SAND-79-0422] 25 p0172 N80-15574	25 p0019 A80-12160
Plywheel energy storage and conversion system for	Monitoring of the solar-heated modular homes at Los Alamos
photovoltaic applications	25 p0022 A80-12607
[COO-4094-48] 25 p0178 N80-15635	An investigation of experimental performance of a
Fusion energy for hydrogen production systems	compound parabolic concentrator
engineering of a process for hydrogen production from nuclear fusion	25 p0023 A80-12748
[BNL-24906] 25 p0180 N80-15897	Some experimental studies on the technical developments of low cost silicon solar cells
SYSTEMS STABILITY	25 p0028 &80-12789
Superconducting magnetic energy storage for	New technology and vehicle operation on roadways
electric power system dynamic stabilization	25 p0037 A80-14702
[LA-UR-79-1220] 25 p0 16C N80-14535	CO2 electric discharge lasers - Present status and
T	future applications 25 p0039 A80-14960
I	The promise and puzzle of electric vehicles
TANKS (CONTAINERS) Ontimal insulation of pipes and tanks for salar	25 p0039 A80-15179
Optimal insulation of pipes and tanks for solar heating systems	Electric and hybrid vehicles Book
[ALO-5319-2] 25 p0 102 N80-10660	25 p0041 <b>880-1565</b> 6

recenical potentialities and economic prespects for coal retrinsing  Warnessing power from tides - 12 p0003 A80-16058  Exploining alternative energy strategies as a power server of the power server and power se		
Sarboring alternative energy articles of the art Exploring alternative energy from the Exploring alternative energy articles of the potential of vind energy concerning orders of sumlipht as a sajor energy source conversion systems 25 potes and energy and the evitonment 23 potes and energy systems 25 potes and energy systems 25 potes and energy energy and the evitonment 25 potes and energy energy and the evitonment 25 potes and energy energy and energy energy and energy and energy ener	coal refining	urban rail vehicles
Comparative risk assessment of energy arter energy source analysis of the potential of vindescray convertion systems of the early constant of the early constant of the early constant of the convertion of the early constant of the convertion of the early constant of the convertion of the	Harnessing power from tides - State of the art	Status of alcohol fuels utilization technology for
An analysis of the potential of xis does also-Trilly an analysis of the potential of xis does also-Trilly conversion systems or proposed also-Trilly conversion systems or proposed and the conversion systems or the conversion of the proposed and the conversion systems or the conversion of the conversion systems or the conversion of the	Exploring alternative energy strategies	[HCP/M2098-03] 25 p0135 M80-13283
An analysis of the potestial of vide cancey conversion systems  2 polos 800-17137  Comparative rish assessment of energy systems  Preparing sincraft propulsion for 2 polos 800-17198  Precent progress in inertial confinement fusion  restricts at the los likes of the systems  Preparing sincraft propulsion for 2 polos 800-17197  Recent progress in inertial confinement fusion  restricts at the los likes of the systems fusion  restricts at the loss of the systems fusion	Global aspects of sunlight as a major energy source	[SERI/TP-35-300] 25 p0140 N80-13635
Comparative rish assessment of energy grafts on 17133 Preparing aircraft propulsion for a new eta in energy and the environment 2 popols A80-17137 Recent progress in inertial confinement fusion research at the low klason Scientific Laboratory research at the low klason Scientific Laboratory and research at the low klason Scientific Laboratory (2008 A80-1788) Summary on inertial-confinement fusion 22 popols A80-17892 Summary on reactor systems tokamak devices 22 popols A80-17893 Extensive extensive energy analysis on the control of the state of technology and general studies, volume 1. Citations from the genera	An analysis of the potential of wind energy	[BNL-26482] 25 p0141 N80-13650
sepects of alternative technologies ——eergy proper since and the environment 2 poofs a80-17377 percent progress in inertial confinement fusion research at the low Almos Scientific Laboratory 25 poofs a80-17882 percent progress in inertial confinement fusion research at the low Almos Scientific Laboratory 25 poofs a80-17883 percent progress in inertial confinement fusion 25 poofs a80-17893 percent progress in inertial confinement fusion 25 poofs a80-17893 percent progress in inertial confinement fusion 25 poofs a80-17893 percent progress in inertial confinement fusion 25 poofs a80-17893 percent progress on inertial-confinement fusion 25 poofs a80-17893 percent progress of the fusion progress for the fusion progress of the fusion progress fusion progress of the fusion progress fusion progress fusion progress of the fusion progress fusion p		storage program
Recent progress in inertial confinement fusion research at the low blasso Scientific Laboratory 25 p0058 ABO-17893 22 p0058 ABO-17893 22 p0058 ABO-17893 23 p0059 ABO-17894 25 p0059 ABO-17895 25 p0059 ABO-1789	Preparing aircraft propulsion for a new era in energy and the environment	aspects of alternative technologies energy
Summary on inertial-confineent fished by the content of the conten	Recent progress in inertial confinement fusion research at the Los Alamos Scientific Laboratory	[CONF-790371-1] 25 p0145 N80-13689 Geothermal energy. Part 3: Technology and
Summary on inertial-confinement fusion  Summary on reactor systems — tokama most in-  Bethods for regional assessment of geothermal  resources  25 p0075 80-1920  The satellite power systems cancept and program  [53E PAPER 1051]  The satellite power systems cancept and program  [53E PAPER 1052]  25 p0086 880-2086  The satellite power systems cancept and program  [53E PAPER 1052]  25 p0086 880-2086  Coal conversion processes and analysis assessment of office open-rycle  power systems  25 p0086 880-2086  [83S-CR-161322]  25 p0087 880-10378  Sate state of the state of the content of the content of the content of the cancel of the content of the co	The Elmo Eumpy Torus /EBT/ reactor	NTIS data base
Summary on reactor systems — tokamak devices Rethods for regional assessment of goothersal resources  25 p0055 A80-12920 OIEC - A comprehensive energy analysis The satellite power systems concept and program (SANF PARES 1905) The satellite power systems concept and program (SANF PARES 1905) A thermodynamic assessment of OTEC open-cycle power systems  Cal conversion processms and analysis Cal conversion processms and economic analysis of reactor design for coal gasification (RASA-Ch-161322) Research guidance for synthetic function and processms and synthesis of the processms and synthesis of the processms and economic reaching the processms and synthesis of the processms and synthesis of the processms and compact analysis of reaching assessment of synthesis to assess gasoline from princher-froppeth technologies (RACP/7228-01) tables to assess gasoline from princher-froppeth technologies (RACP/7228-01) tables to assess gasoline from princher-froppeth technology policy analysis. Tolume 1: Summary (Pari-2763) Pari-2763) Selected results from the technology successment of a synthesis of the properties of the properties of the processms and the properties of the	Summary on inertial-confinement fusion	Assessment of the state of technology of
resources  2 poors Aso-1902 OIEC - A comprehensive energy analysis  2 pooles Aso-20456 The satellite power system concept and program (Sare Parker 1905) = 5 pooles Aso-20464 A thermodynamic assessment of OTEC open-cycle power systems  2 pooles Aso-20464 A thermodynamic assessment of OTEC open-cycle power systems  2 pooles Aso-20464 A thermodynamic assessment of OTEC open-cycle power systems  2 pooles Aso-20464 A thermodynamic assessment of OTEC open-cycle power systems  2 pooles Aso-20464 Coal conversion processes and analysis extended poles for synthetic fuels production tended processes and analysis of tended production tended processes and analysis of tended production		
OTRC - A comprehensive energy analysis 25 p0058 A80-19202  The satellite power system concept along the satellite power system concept and power appears are appeared by the power appears and power appears are appeared by the power appears are appeared by the power appears and power appears are appeared by the power appea	Methods for regional assessment of geothermal	technology of large diameter ingots for solar
The satellite power systes concept and programs [SANF APPER 1305] 25 p0068 A80-20630 A bhorzodyanaic assessment of OTEC open-cycle power systems are concept to power systems. The power systems are concept and programs are the power systems are concept and programs are the power systems are concept and analysis are theodologies for synthetic fuels production	25 p0075 #80-19202	[NASA-CR-162535] 25 p0151 N80-14273
[CONF-750373-1] 25 p0168 A80-10633 A thermodynamic assessment of OTEC open-cycle power systems  25 p0128 A80-20886 Coal conversion processes and analysis sethodologies for synthetic fuels production — technology assessment and economic analysis of reactor design for coal gasification [MASA-CR-161322] Assessment of synfuel transportation to year 2000 assessment of synfuel transportation to year 2000 assessment of synfuel transportation to year 2000 asserted injuried hydrogen container techniques for highway vehicle fuel system applications [RCP/M2752-01] assessment and economic analysis of hydrogen so injury to an asserted assessment of synfuel transportation to year 2000 assessment of synfuel transportation to year 2000 assessment of liquid hydrogen container techniques for highway vehicle fuel system applications [RCP/M2752-01] assessment and economic associations [RCP/M2752-01] assessment and economic analysis of hydrogen installs surface profit for recovery of many to analyze hydrogen for hydrogen for hydrogen for hydrogen has denergy assessment of liquid hydrogen container techniques for highway vehicle fuel system applications [RCP/M2752-01] assessment of liquid hydrogen container techniques for highway vehicle fuel system applications (RCP/M2286-01] 25 p0033 M80-10386 [RCP/M27286-01] 25 p0039 M80-10386 [RCP/M27286-01] 25 p0039 M80-10386 [RCP/M27286-01] 25 p0039 M80-10618 [RCP/M2761] 25 p0039 M80-10618 [RCP/M2761] 25 p0039 M80-10618 [RCP/M2761] 25 p0039 M80-10618 [RCP/M2761] 25 p0039 M80-10619 [RCP/M2761] 25 p0039 M80-1	25 p0085 A80-20456	development and demonstration program for the
coal conversion processes and analysis aethodologies for synthetic fuels production—technology assessment and economic analysis of [NEAR-Ch-161322] 25 p0032 NB0-10379 Assessment of synfuel transportation to year 2000 [PML-768] 25 p0032 NB0-10380 [PML-7768] 25 p0032 NB0-10380 [PML-7758] 25 p0032 NB0-10380 [PML-7758-1] 25 p0032 NB0-10380 [RCF/M2752-01] 25 p0032 NB0-10380 [RCF/M2752-01] 25 p0032 NB0-10380 [RCF/M2752-01] 25 p0032 NB0-10380 [RCF/M2752-01] 25 p0033 NB0-10380 [RCF/M2766-01] 25 p0033 NB0-10380 [RCF/M2766-01] 25 p0033 NB0-10380 [RCF/M2766-01] 25 p0035 NB0-10380 [RCF/M2766-01] 25 p0035 NB0-10380 [RCF/M2765-01] 25 p0035 NB0-10380 [RCF/M2766-01] 25 p0035 NB0-10380 [RCF/M27		
coal conversion processes and analysis  aethodologies for synthetic fuels production — technology assessment and economic analysis of reactor design for coal gasification [MASA-C-161322] [ANL-2768]  ENL-2768]  Survey of liquid hydrogen container techniques for highway vehicle fuel system applications [HCC/PZ752-01] Research guidance studies to assess gasoline from coal by methanol-tro-gasoline and sasol-type rischer-Tropsch technologies [FP-2447-03] Synthem of the Solar Reflective Materials Technology Sockshor [ENL-2763]  Summary report of the Solar Reflective Materials Technology Sockshor [AL-77-950]  Selected results from the technology policy analysis. Volume 1: Executive Summary [GEC/PZ2286-01]  Selected results from the technology assessment of solar energy program [LA-UR-7950]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  Selected results from the technology assessment of solar energy program [LA-UR-7950]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art of sensible heat storage for solar heat pump systems [BM-25909]  State of the art		
methodologies for synthetic fuels production—technology assessment and economic analysis of preactor design for coal gasification  [MASA-C-161322] 25 p0092 N80-10379 Assessment of synfuel transportation to year 2000  [PML-704 flajial hydrogen contained to the production of playing an interval product of playing the production of playing an interval playing the production of playing an interval playing the production of playing an interval playing the playing and playing an interval playing the playing an interval playing and interval playing an interval playing an interval playing an interval playing and interval playing an interval playing an interval playing and interval playing an  interval playing and interval playing and interval playing an interval p	25 p0088 A80-20886	vehicles. Volume 1: Executive summary
reactor design for coal gasification [NASA-CR-161322] Assessment of Synfuel transportation to year 2000 [PNL-7768] Survey of liquid hydrogen container techniques for highway webicle fuel system applications [NECAR. 7361 and the state of the synfuel transportation to year 2000 [NECAR. 7361 and the synfuel properties of highway webicle fuel system applications [NECAR. 7361 and the synfuel properties of highway webicle fuel system applications [NECAR. 7361 and the synfuel properties of highway webicle fuel system applications [NECAR. 7361 and the synfuel properties of the synfuel proper	methodologies for synthetic fuels production	Analysis of hydrogen in solids technology
Research of synfuel transportation to year 2000 [PNI-766]	reactor design for coal gasification	hydrogen based energy and hydrogen production
Survey of liquid hydrogen container techniques for highway vehicle fuel system applications [RC/PZ752-01] 25 p009 N80-1038 [Research quidance studies to assess gasoline from coal by methanol-to-gasoline and sasol-type Fischer-Tropsch technologies [PE-2447-13] 25 p0093 N80-10388 [NSA-CB-150696] 25 p0171 N80-15563 [NSA-CB-150696] 25 p0172 N80-15563 [NSA-CB-1640] 25 p0172 N80-10313 [NSA-CB-1640] 25 p0173 N80-10	Assessment of synfuel transportation to year 2000	Commercialization strategy report for recovery of
Research guidance studies to assess gasoline from coal by methanol-to-gasoline and sasol-type Pischer-Troposh technologies [PE-2447-13]	Survey of liquid hydrogen container techniques for	[TID-28848-DRAFT] 25 p0168 N80-15287
rischer-Tropsch technologies [FF-2447-13] [FF-2447-13] [FF-2486-01] [FICP/T2286-01] [FICP/T2286-01] [FICP/T2286-01] [FICP/T2286-01] [FICP/T2286-01] [FICP/T2286-01] [FICP/T2286-01] [FICP/T2286-01] [FICP/T2386-01] [FICP/T238	[HCP/M2752-01] 25 p0092 N80-10383	
[FF-2497-13] 25 p0093 880-10388 [CORF-781006-2] 25 p0175 880-15611 [COFF-781006-2] 25 p018 880-15994 [COFF-781006-2] 25 p018 880-1621 [COFF-781006-2] 25 p018 880-15994 [COFF-781006-2] 25 p018 880-1999 [COF		
Coal conversion systems: Technical data book [RCP/T28286-01] 25 p0093 N80-10392 Summary report of the Solar Reflective Haterials Technology Workshor [PNI-2763] Environmental data for energy technology policy analysis. Volume 1: Summary [HCP/EV6119-1] 25 p0098 N80-10629 Environmental readiness of emerging energy technologies [DDF/ERD-0022] 25 p0099 N80-10631 Selected results from the technology assessment of solar energy program [LL-UR-79-950] 25 p0099 N80-10637 State of the art of sensible heat storage for solar heat pump systems [ENI-25099] 25 p0101 N80-10651 Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [URI-52553-VOL-1] 25 p0108 N80-10970 Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [PR-27878374] 25 p0107 N80-11255 Bell Creek residual oil saturation technology test (ENET-2180-4] 25 p0108 N80-1154 An evaluation of the NASA Tech Bouse, including live-in test results, volume 1 [NASA-TR-1564] 25 p0108 N80-11559 Southeastern forum on appropriate technology [PR-278796/4] 25 p0108 N80-11559 Southeastern forum on appropriate technology [PR-278796/4] 25 p0108 N80-11569 The future role of hydrogen fuel in an electrical society [VTIAS-241] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [VTIAS-241] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [VTIAS-241] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [VTIAS-241] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [VTIAS-241] 25 p0118 N80-11289 [CONF-781006-2] 25 p012 N80-10629  TECHNOLOGY TRINSPER  Committee on Science and Technology 155 pol79 NR0-10629  TECHNOLOGY TRINSPER  SCALAGIG, TRINSPER  SCALAGIG, TRINSPER  SCALAGIG, TRINSPER  SCALAGIG, TRINSPER  Committee on Science and Technology 155 pol79 NR0-10629  TECHNOLOGY TRINSPER  SCALAGIG, TRINSPER  SCALAG		
Summary report of the Solar Reflective Materials Technology Workshop [PMI-2763] Environmental data for energy technology policy analysis. Volume 1: Summary [MCF/FV6119-1] 25 p0038 M80-10629 Environmental readiness of emerging energy technologies [DOF/RRD-0022] 25 p0099 N80-10631 Selected results from the technology assessment of solar energy program [LA-UR-79-950] State of the art of sensible heat storage for solar heat pump systems [BMI-25909] Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCLT-52553-VOL-1] Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCLT-52553-VOL-1] Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCLT-52553-VOL-1] Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCLT-52553-VOL-1] Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCLT-52553-VOL-1] Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCLT-52553-VOL-1] Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCLT-52553-VOL-1] Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCLT-52553-VOL-1] Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCLT-52553-VOL-1] Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCLT-52553-VOL-1] Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCLT-52553-VOL-1] ENERGHOLOGY TRABSPEM Society and Aerospace Technology Rothshop, 105 25 p0108 N80-11532 Transfer of energy conservation experiments with the offshore oil, gas and mining industry. Propugation expergy conservation technology to industry. Paperline systems [NAL-CE-162423] ENERGLOGY TRABSPEM Society and Aerospace Technology Rothshop in Standard Recepty Conservation experiments with the offshore oil, gas and mining dustries [NAL-CE-	Coal conversion systems: Technical data book	[CONF-781006-2] 25 p0175 N80-15611
Environmental data for energy technology policy analysis. Volume 1: Summary [HCP/ZV6119-1] 25 p0058 N80-10629 Environmental readiness of emerging energy technologies [DDC/ZRD-0022] 25 p0099 N80-10631 Selected results from the technology assessment of solar energy program [LA-UR-79-950] 25 p0099 N80-10637 State of the art of sensible heat storage for solar heat pump systems [BNL-25909] 25 p0101 N80-10637 State of the art of sensible heat storage for solar heat pump systems [BNL-25909] 25 p0101 N80-10637 Sensement of long term research needs for coal-gasification technologies [PB-297853/4] 25 p0107 N80-11255 [BETC-2180-4] 25 p0108 N80-11546 An evaluation of the NASA Tech Bouse, including live-in test results, volume 1 [NASA-TP-1564] 25 p0108 N80-11598 Southeastern forum on appropriate technology [PB-298796/4] 25 p0118 N80-11598 Southeastern forum on appropriate technology [UTIAS-241] 25 p0119 N80-12189 [UCIAS-241] 25 p0119 N80-12189 [UCIAS-241] 25 p0120 N80-12189 [UCIAS-241] 25 p0120 N80-12189 [UCIAS-241] 25 p0120 N80-12189 [UCIAS-241] 25 p0130 N80-12189 [UCIAS-241] 25 p0120 N80-12189 [UCIAS-241] 25 p0130 N80-12189 [UCIAS-241] 25 p0120 N80-12200 Search for fusion power [UCIAS-241] 25 p0120 N80-12200 The reality of on-site fuel cells	Summary report of the Solar Reflective Materials	Committee on Science and Technology 1959 - 1979
analysis. Volume 1: Summary [HCP/EV6119-1] 25 p0038 N80-10629 Environmental readiness of emerging energy technologies [DOZ/ERD-0022] 25 p0099 N80-10631 Selected results from the technology assessment of solar energy program [LA-UR-79-950] 25 p0099 N80-10637 State of the art of sensible heat storage for solar heat pump systems [BNL-25909] 25 p0101 N80-1051 Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCRL-52553-VOL-1] 25 p0105 N80-10970 Assessment of long term research needs for coal-gasification technologies [PB-297853/4] 25 p0108 N80-11255 Bell Creek residual oil saturation technology test [PB-297853/4] 25 p0108 N80-11598 Southeastern forum on appropriate technology [PB-298796/4] 25 p0108 N80-1159 Southeastern forum on appropriate technology [PB-298796/4] 25 p0108 N80-11965 The future role of hydrogen fuel in an electrical society [UTILS-241] 25 p0119 N80-12189 HYGAS process update [CONF-781045-4] 25 p0120 N80-12200 Search for fusion power  Angeles, Calif., November 15, 1979, Proceedings (NSA-Cl-162423] 25 p0108 N80-14532 Transfer of energy conservation technology to industries [NASA-CR-162423] 25 p0108 N80-11576 Proceedings (NASA-CR-162423] 25 p0108 N80-11576 Selected results from the technology assessment of industries [NASA-CR-162423] 25 p0118 N80-11576 Proceedings [NASA-CR-162423] 25 p0118 N80-11576 [NASA	[PNI-2763] 25 p0097 N80-10613	TECHNOLOGY TRANSPER
col., gas and mining industries [NBASA-CB-162423] 25 p0108 N80-11532  Selected results from the technology assessment of solar energy program [LA-UR-79-950] 25 p0099 N80-10637  State of the art of sensible heat storage for solar heat pump systems [BNL-25909] 25 p0101 N80-10651  Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCRL-52553-V01-1] 25 p0105 N80-10970  Assessment of long term research needs for coal-gasification technologies [PB-297853/4] 25 p0107 N80-11255  Bell Creek residual oil saturation technology test [BETC-2180-4] 25 p0108 N80-11546 An evaluation of the NASA Tech Bouse, including live-in test results, volume 1 [NASA-TP-1564] 25 p0109 N80-1159  Southeastern forum on appropriate technology [PB-298796/4] 25 p0118 N80-11965  The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189  HYGAS process update [CONF-781045-4] 25 p0120 N80-12200  Search for fusion power  oil, gas and mining industries [NASA-CB-162423] 25 p0108 N80-11532  Transfer of energy conservation technology to industry. A preliminary survey of existing mechanisms [ANL/EES-TM-28] 25 p0111 N80-11576  Proceedings: Solar Thermal Power User Review Panel Meeting [SERI/TP-69-221] 25 p0133 N80-12957  Review of supporting research at Oak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295  TECHNOLOGY UTILIZATION  Soft and hard energy paths - The roads not taken political, technical and philosophicus trisulphides as battery cathodes  trisulphides as battery cathodes  Low/medium BTU coal gasification - Perspective of the gas industry  25 p0015 A80-11969  The reality of on-site fuel cells	analysis. Volume 1: Summary [HCP/EV6119-1] 25 p0098 N80-10629	Angeles, Calif., November 15, 1979, Proceedings
Selected results from the technology assessment of solar energy program [LA-UR-79-950] 25 p0099 N80-10637 State of the art of sensible heat storage for solar heat pump systems [BNI-25909] 25 p0101 N80-10651 Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCRL-52553-VOL-1] 25 p0105 N80-10970 Assessment of long term research needs for coal-gasification technologies [PB-297653/4] 25 p0107 N80-11255 Bell Creek residual oil saturation technology test [BETC-2180-4] 25 p0108 N80-11596 An evaluation of the NASA Tech Bouse, including live-in test results, volume 1 [NASA-TP-1564] 25 p0109 N80-11559 Southeastern forum on appropriate technology [PB-298796/4] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189 HYGAS process update [CONF-781045-4] 25 p0120 N80-12200 Search for fusion power  Transfer of energy conservation technology to industry. A preliminary survey of existing mechanisms  [ANL/EES-TR-28] 25 p0111 N80-11576 Proceedings: Solar Thermal Power User Review Panel Meeting [SERI/TP-69-221] 25 p0113 N80-11598 Haltimore applications project [NASA-TH-80577] 25 p0133 N80-12957 Herical Meeting [SERI/TP-69-221] 25 p0133 N80-12957 Herical Meeting [SERI/TP-69-221] 25 p0138 N80-13295 TECHNOLOGY UTILIZATION Soft and hard energy paths - The roads not takenpolitical, technical and philosophical aspects of energy problem  25 p0007 A80-11400 Utilization of transition metal phosphorus trisulphides as battery cathodes trisulphides as battery cathodes  Low/medium BTU coal gasification - Perspective of the gas industry 25 p0015 A80-11969		
State of the art of sensible heat storage for solar heat pump systems [BNI-25909] 25 p0101 N80-10651 Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCRI-52553-VOI-1] 25 p0105 N80-10970 Assessment of long term research needs for coal-gasification technologies [PB-297853/4] 25 p0107 N80-11255 Bell Creek residual oil saturation technology test [BETC-2180-4] 25 p0108 N80-11546 An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TP-1564] 25 p0108 N80-11559 Southeastern forum on appropriate technology [PB-298796/4] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189 HYGAS process update [CONF-781045-4] 25 p0120 N80-12200 Search for fusion power  mechanisms [ANL/EES-TM-28] 25 p0111 N80-11576 Proceedings: Solar Thermal Power User Review Panel Meeting [SERI/TP-69-221] 25 p0113 N80-11598 Baltimore applications project [NASA-TH-80577] Review of supporting research at Oak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295  TECHNOLOGY UTILIZATION Soft and hard energy paths - The roads not taken political, technical and philosophical aspects of energy problem  Utilization of transition metal phosphorus trisulphides as battery cathodes  Low/medium BTU coal gasification - Perspective of the gas industry  25 p0015 A80-11969		
State of the art of sensible heat storage for solar heat pump systems [BNL-25909] 25 p0101 N80-10651 Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCRL-52553-VOL-1] 25 p0105 N80-10970 Assessment of long term research needs for coal-gasification technologies [PE-297853/4] 25 p0107 N80-11255 Bell Creek residual oil saturation technology test [BETC-2180-4] 25 p0108 N80-11546 An evaluation of the NASA Tech House, including live-in test results, volume 1 [NSA-TP-1564] 25 p0109 N80-11599 Southeastern forum on appropriate technology [PB-298796/4] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189 HIGAS process update [CONF-781045-4] 25 p0120 N80-12200 Search for fusion power  [RNL/EES-TH-28] 25 p0111 N80-11578 Proceedings: Solar Thermal Power User Review Panel Meeting [SERI/TP-69-221] 25 p0113 N80-11598 Baltimore applications project [NASA-TH-80577] 25 p0133 N80-12957 Beview of supporting research at Oak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 TECHNOLOGY UTILIZATION Soft and hard energy paths - The roads not taken political, technical and philosophical aspects of energy problem  Utilization of transition metal phosphorus trisulphides as battery cathodes  Low/medium BTU coal gasification - Perspective of the gas industry  25 p0015 A80-11969	solar energy program [LA-UR-79-950] 25 p0099 N80-10637	industry. A preliminary survey of existing
Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings [UCRL-52553-VOL-1] 25 p0105 N80-10970 Assessment of long term research needs for coal-gasification technologies [PB-297853/4] 25 p0107 N80-11255 Bell Creek residual oil saturation technology test [EBTC-2180-4] 25 p0108 N80-11546 An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TP-1564] 25 p0109 N80-1159 Southeastern forum on appropriate technology [PB-298796/4] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189 HIGAS process update [CONF-781045-4] 25 p0120 N80-12200 Search for fusion power [SEEL/TP-69-221] 25 p0113 N80-11598 Baltimore applications project [NASA-TH-80577] 25 p0133 N80-12957 Beview of supporting research at Oak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 TECHNOLOGY UTILIZATION Soft and hard energy paths - The roads not taken political, technical and philosophical aspects of energy problem  Sociaty [UTIAS-241] 25 p0119 N80-11898 HIGAS process update [CONF-781045-4] 25 p0110 N80-12200 Search for fusion power [SEEL/TP-69-221] 25 p0113 N80-12957 Beview of supporting research at Oak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 TECHNOLOGY UTILIZATION Soft and hard energy paths - The roads not taken political, technical and philosophical aspects of energy problem  Soft and hard energy problem  Utilization of transition metal phosphorus trisulphides as battery cathodes  Low/medium BTU coal gasification - Perspective of the gas industry  25 p0015 A80-11969	State of the art of sensible heat storage for solar heat pump systems	[ANL/EES-TM-28] 25 p0111 N80-11576 Proceedings: Solar Thermal Power User Review
[UCRL-52553-VOL-1] 25 p0105 N80-10970 Assessment of long term research needs for coal-gasification technologies [PB-297853/4] 25 p0107 N80-11255 Bell Creek residual oil saturation technology test [BETC-2180-4] 25 p0108 N80-11546 An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TF-1564] 25 p0109 N80-11559 Southeastern forum on appropriate technology [PB-298796/4] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189 HIGAS process update [CONF-781045-4] 25 p0120 N80-12200 Search for fusion power  [NASA-TH-80577] 25 p0133 N80-12957 Review of supporting research at Oak Ridge National Laboratory for underground coal conversion [CONF-796030-9] 25 p0136 N80-13295 TECHNOLOGY UTILIZATION Soft and hard energy paths - The roads not taken political, technical and philosophical aspects of energy problem  25 p0007 A80-11400 Utilization of transition metal phosphorus trisulphides as battery cathodes  trisulphides as battery cathodes  100 metal phosphorus  25 p0112 A80-11858 Low/medium BTU coal gasification - Perspective of the gas industry  25 p0015 A80-11969 The reality of on-site fuel cells	Energy storage systems for automobile propulsion,	[SERI/TP-69-221] 25 p0113 N80-11598
coal-gasification technologies [PB-297853/4] 25 p0107 N80-11255  Bell Creek residual oil saturation technology test [BETC-2180-4] 25 p0108 N80-11546  An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TP-1564] 25 p0109 N80-11559  Southeastern forum on appropriate technology [PB-298796/4] 25 p0118 N80-11965  The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189  HYGAS process update [CONF-781045-4] 25 p0120 N80-12200  Search for fusion power  Hadional Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295  TECHNOLOGY UTILIZATION  Soft and hard energy paths - The roads not taken political, technical and philosophical aspects of energy problem  Utilization of transition metal phosphorus trisulphides as battery cathodes  Low/medium BTU coal gasification - Perspective of the gas industry  25 p0015 A80-11969  The reality of on-site fuel cells	[UCRL-52553-VOL-1] 25 p0105 N80-10970	[NASA-TM-80577] 25 p0133 N80-12957
Bell Creek residual oil saturation technology test [BETC-2180-4] 25 p0108 N80-11546 An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TP-1564] 25 p0109 N80-11559 Southeastern forum on appropriate technology [PB-298796/4] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189 HIGAS process update [CONF-790630-9] 25 p0136 N80-13295 TECHNOLOGY UTILIZATION Soft and hard energy paths - The roads not taken political, technical and philosophical aspects of energy problem  Utilization of transition metal phosphorus trisulphides as battery cathodes Low/medium BTU coal gasification - Perspective of the gas industry  25 p0012 A80-11969 Search for fusion power  The reality of on-site fuel cells	coal-gasification technologies	National Laboratory for underground coal
An evaluation of the NASA Tech House, including live-in test results, volume 1 [NASA-TP-1564] 25 p0109 N80-11559 Southeastern forum on appropriate technology [PB-298796/4] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189 HYGAS process update [CONF-781045-4] 25 p0120 N80-12200 Search for fusion power  Soft and hard energy paths - The roads not taken political, technical and philosophical aspects of energy problem  Utilization of transition metal phosphorus trisulphides as battery cathodes Low/medium BTU coal gasification - Perspective of the gas industry  25 p0012 A80-11969 The reality of on-site fuel cells	Bell Creek residual oil saturation technology test	[CONF-790630-9] 25 p0136 N80-13295
[NASA-TP-1564] 25 p0109 N80-11559 Southeastern forum on appropriate technology [PB-298796/4] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189 HYGAS process update [CONF-781045-4] 25 p0120 N80-12200 Search for fusion power  aspects of energy problem 25 p0007 A80-11400 Utilization of transition metal phosphorus trisulphides as battery cathodes 25 p0012 A80-11858 Low/medium BTU coal gasification - Perspective of the gas industry 25 p0015 A80-11969	An evaluation of the NASA Tech House, including	Soft and hard energy paths - The roads not taken
[PB-298796/4] 25 p0118 N80-11965 The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189 HIGAS process update [CONF-781045-4] 25 p0120 N80-12200 Search for fusion power  Search for fusion power  Search for fusion power  Search for fusion power  Utilization of transition metal phosphorus trisulphides as battery cathodes  Low/medium BTU coal gasification - Perspective of the gas industry 25 p0015 A80-11969 The reality of on-site fuel cells	[NASA-TP-1564] 25 p0109 N80-11559	aspects of energy problem
25 p0112 N80-11858   25 p0119 N80-12189   Low/medium BTU coal gasification - Perspective of the gas industry   25 p0115 N80-11969   25 p0120 N80-12200   25 p015 N80-11969   25 p015 N80-1200   25 p015 N80-11969   26 p015 N80-1200   27 p015 N80-11969   27 p015 N80-1200   28 p015 N80-1200   29 p015 N80-1200   20 p015	[PB-298796/4] 25 p0118 N80-11965	Utilization of transition metal phosphorus
[CONF-781045-4] 25 p0120 N80-12200 25 p0015 A80-11969 Search for fusion power The reality of on-site fuel cells	[UTIAS-241] 25 p0119 N80-12189	25 p0012 A80-11858 Low/medium BTO coal gasification - Perspective of
	[CONF-781045-4] 25 p0120 N80-12200	25 p0015 480-11969

·	
Source, supply and nature of municipal and industrial waste as a fuel	TEMPERATURE EFFECTS  Experimental enthalpies for a mixture of 80 mole
25 p0017 A80-1 Puel cell sesquicentennial	[EPRI-ER-1034] 25 p0118 N80-11935
25 p0C33 A80-1 The role of technology as air transportation fac- the fuel situation	
25 p0037 A80-1 Application of solar and fuel cell technology to industrial users	4700 Heat flow and heat transfer conditions in the bottom sediments of the equatorial Indian Ocean 25 p0075 A80-19048
25 p0037 A80-1 A link between science and applications of	1707 TEMPERATURE MEASUREMENT
automatic control; Proceedings of the Seventh	Energy meter for solar air systems 25 p0022 A80-12609
Triennial World Congress, Helsinki, Finland, June 12-16, 1978. Volumes 1, 2, 3 & 4 25 p0038 A80-1	TEMPRHATURE MEASURING INSTRUMENTS Development and testing of the Solar Control 4794 Corporation modular controller and Solarstat
Solar cells in practice 25 p0083 A80-1	subsystem
Space applications of superconductivity - High field magnets	TEMPERATURE SENSORS  Heat flow meters for solar system performance
25 p0084 #80-2 Passive solar energy programs and plans	D128 monitoring 25 p0022 A80-12608
[GPO-36-211] 25 p0095 N80-1 Technology development needs for high temperature	0599 TEST EQUIPMENT
process heat	transmission line test bed
[SERI/TR-35-047] 25 p0143 N80-1 Industrial applications of advanced energy syste [CONF-790602-54] 25 p0147 N80-1	Impact of new instrumentation on advanced turbine
Fuel cell option [CONF-7809137-1] 25 p0158 N80-1	[NASA-TM-79301] 25 p0166 N80-15133
Applications of fuel cells in transportation [LA-UR-79-628] 25 p0159 N80-1	An overview of Controlled Thermonuclear Research
A review of the economics of selected passive an	usage at the Los Alamos Scientific Laboratory
hybrid systems design concepts for solar energy utilization	25 p0022 A80-12628 The application of computers to fusion
[SERI/TF-61-144] 25 p0161 N80-1 Commercializing solar architecture	4547 experimental facilities 25 p0080 A80-19619
[SERI/TP-62-113] 25 p0161 N80-1 Solar/wind handbook for Hawaii: Technical	
applications for Hawaii, the Pacific Easin and sites worldwide with similar climatic conditio	operation
[UCBL-15053] 25 p0177 N80-1 TECTONICS	5628 Experimental test facility for evaluation of solar control strategies
Summaries of physical research in the geoscience [DOE/ER-0030] 25 p0137 N80-1	
TRIBCOMMUNICATION Autonomous power supplies for telecommunications	[COO-4094-10] 25 p0127 N80-12592 Test plan for the Mead 25-kW Photovoltaic Flexible
TELESCOPES 25 p0033 A80-1	[C00-4094-53] 25 p0146 N80-13692
Measurement of circumsolar radiation: Status rep [LBL-8391] 25 p0133 N80-1	2982 photovoltaic systems test facility
TEMPERATURE COMPENSATION Optimization of a solar heating system with	[COO-4094-41] 25 p0 178 N80-15638 TETHERING
integral compensation 25 p0089 A80-2	Blectricity generation from jet-stream winds 0894 25 p0007 A80-11644
TERPREATURE CONTROL  The thermal triode construction by adding controlling zone to heat pipe	TETRACHLORIDES Tetrachlorodibenzo-p-dioxin quantitation in
25 p0037 A80-1	
The simulation of building heat transfer for passive solar systems	TRIAS Geopressure energy resource evaluation Texas
[ASME PAPER 79-WA/SOL-38] 25 p0067 A80-1 Optimal control studies of a solar heating syste	8574 and Louisiana
[LA-UR-78-2556] 25 p0100 N80-1 Development and testing of the Solar Control	0646 TRITILES  Energy conservation through point source recycle
Corporation modular controller and Solarstat subsystem	<pre>with high temperature hyperfiltration textile industry</pre>
[NASA-TM-78243] 25 p0156 N80-1 TEMPERATURE DEPENDENCE	4498 [PB-299183/4] 25 p0180 N80-15688 THEMATIC MAPPING
Temperature dependence of open-circuit photovoltage of a back-surface field semiconductor junction	Interactive analysis methods for resource mapping 25 p0008 A80-11709 THERMAL BATTERIES
25 p0 087 A80-2	O727 Studies on the Ca-CaCrO4 and Li-Al-PeS2 systems
TEMPERATURE DISTRIBUTION Transient rise of plate temperature in solar	for thermal battery applications 25 p0012 A80-11854
collectors 25 p0023 A80-1	Heat generation in Li/SOC12 cells 2746 25 p0012 A80-11855
Calculation of climatic solar heating performanc 25 p0029 A80-1	e Batteries for specific solar applications 2820 [SAND-79-1428C] 25 p0124 m80-12559
Experimental and numerical studies of liquid storage tank thermal stratification for a sola energy system	
[COO-4479-2] 25 p0101 N80-1	0655 THERMAL DEGRADATION
Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model	Thermal degradation of a black chrome solar selective absorber coating: Short term
[PB-297274/3] 25 p0108 H80-1 Dynamic response of a packed-bed energy storage	1551 [LBL-8857] 25 p0161 880-14549
system to a time varying inlet temperature 25 p0121 180-1	2341

SUBJECT INDEX THERMODYNAMIC EFFICIENCY

THER MAL DIPPOSION	Experimental enthalpies for a mixture of 80 mole
Diffusion of tritium in neutron-irradiated	percent isobutane in isopentane
microcrystalline Beta-Li5AlO4 25 p0081 A80-19660	[EPRI-EE-1034] 25 p0118 N80-11935 THERMOCHEMISTRY
THERMAL DISSOCIATION	Design of a small thermochemical receiver for
Direct thermal decomposition of water	solar thermal power
25 p0052 A80-17577 THER MAL EMISSION	25 p0005 A80-11338
Environmental overview of geothermal development:	The R&D programme of the European communities in the field of hydrogen - Progress and results
The Geysers-Calistoga KGRA. Volume 1: Issues	25 p0 032 A80-13195
and recommendations	Thermodynamics of water-splitting for hydrogen
[UCBL-52496-VOL-1] 25 p0177 N80-15626	production
THERMAL REERGY Review of thermal storage materials from the view	25 p0052 A80-17575 Thermochemical hydrogen production
point of solar energy application	25 p0052 A80-17578
25 p0025 A80-12756	Hydrogen production. Citations from the
Industrial applications of solar energy in India	international aerospace abstracts data base
25 p0027 A80-12780  Heat transfer to a melting solid with application	[NIIS/PS-79/0773/6] 25 p0094 N80-10401 Solar generation of industrial steam. Innovative
to thermal energy storage systems	research program subtask
25 p0036 A80-14667	[COO-4546-9] 25 p0101 N80-10656
The impact of a conceptual solar thermal electric	LASL thermochemical hydrogen program status on
conversion plant on regional meteorological conditions - A numerical study	October 31, 1978 fusion-synfuel [LA-UR-78-2895] 25 p0120 N80-12197
25 p0060 A80-18125	Process design of the LASL bismuth sulfate
An electrochemical heat engine for direct solar	thermochemical hydrogen cycle
energy conversion	[LA-UB-79-1256] 25 p0129 N80-12605
25 p0061 A80-18131 Osmotically pumped energy transport system	Process design and economic analysis of the zinc
[AIAA PAPER 80-0210] 25 p0064 A80-18378	selenide thermochemical hydrogen cycle [UCRL-52546] 25 p0164 N80-14571
Thermal energy utilization in the Mississippi	THER HODYNAMIC CYCLES
County Community College Photovoltaic Project	Performance of disk generators for open-cycle MED
[ASME PAPER 79-WA/SCL-29] 25 p0068 A80-18575	power generation
Fluid Dynamics of Porous Media in Energy Applications, volume 1 heat storage and	25 p0007 A80-11642 The analysis and simulation of an open cycle
transfer in solar energy conversion systems	absorption refrigeration system
[VKI-LEC-SER-1979-4-VOL-1] 25 p0121 N80-12338	25 p0029 A80-12825
Dynamic response of a packed-bed energy storage system to a time varying inlet temperature	The possibilities of increasing gas turbine efficiency
25 p0121 N80-12341	25 p0032 A80-13024
Heat storage and thermal transfer aspects of the	Thermodynamic analysis of thermomechanical solar
dynamic behaviour of a racked bed	energy converters operating in conjunction with
25 p0121 N80-12342	solar cells
Low-temperature thermal energy storage rrogram annual operating plan	25 p0035 A80-14592 Advanced solar thermal receiver technology
[ORNL/TM-6934] 25 p0139 N80-13631	[AIAA PAPER 80-0292] 25 p0063 A80-18297
Large-scale annual-cycle thermal energy storage in	Screening evaluation of electric power cycles
aquifers [CONF-790515-3] 25 p0145 N80-13686	integrated with coal gasification plants
Department of Energy large solar central power	[ASME PAPER 79-WA/ENER-4] 25 p0071 A80-18644 Novel power generation cycles using coal gas
systems semiannual review	[ASME PAPER 79-WA/ENER-5] 25 p0071 A80-18645
[SAND-78-8511] 25 p0175 N80-15601	Novel gas turbine cycles with coal gasification
Aguifer thermal energy storage [LBL-7070] 25 p0176 N80-15618	[ASME PAPER 79-WA/FNER-6] 25 p0071 A80-18646 A study of the solar LiBr dual cycle characteristics
THERMAL INSULATION	[AIAA PAPEE 80-0400] 25 p0077 A80-19327
Optimal insulation of solar heating system pipes	Studies on carbon dioxide cycles for power
and tanks	generation. I - Fundamental condensation cycles
25 p0021 A80-12434 Economic performance of passive solar heating: A	25 p0083 A80-19716 Open cycle air turbine solar thermal rower system
preliminary analysis	25 p0083 A80-19989
[LA-UR-78-2861] 25 p01CC N80-10645	A thermodynamic assessment of OTEC open-cycle
Experimental and numerical studies of liquid	power systems
storage tank thermal stratification for a solar energy system	25 p0088 A80-20886 Analysis of binary thermodynamic cycles for a
[COC-4479-2] 25 p0101 N80-10655	moderately low-temperature geothermal resource
Optimal insulation of pipes and tanks for solar	[TREE-1365] 25 p0139 N80-13627
heating systems	THERMODYNAMIC EFFICIENCY
[ALO-5319-2] 25 p0102 N80-10660 THERMAL MAPPING	Second-law analysis of solar-thermal processes 25 p0003 A80-10843
Residential heat loss mapping of Parmington, New	Performance of an inexpensive constant flow solar
Mexico using airborne thermal scanning	collector/storage system in ground
25 p0084 A80-20242	25 p0003 A80-10846
THERMAL RESOURCES OTEC thermal response report for Pacific plant	Performance of disk generators for open-cycle MHD power generation
ship, 5 to 10 deg N 90 to 95 deg W	25 p0007 A80-11642
[HCP/T2898-01/3] 25 p0142 N80-13656	Heat flow meters for solar system performance
THER MALIZATION (ENERGY ABSORPTION)	monitoring
Efficiency of quantum-utilizing solar energy converters in the absence of intraband	25 p0022 A80-12608 Solar energy flat plate collectors - Optimization
thermalization	of air gap
25 p0030 A80-12838	25 p0023 A80-12745
THERMOCHEMICAL PROPERTIES	Selection of working fluids for low temperature
An incongruent heat-of-fusion system - CaCl2-6H2O - made congruent through modification of the	solar thermal power cycles 25 p0024 A80-12751
chemical composition of the system during	Correspondence between solar load ratio method for
melting 25 m0030 A90-12022	passive water wall systems and f-Chart

25 p0029 A80-12821

THER HODYNAMIC PROPERTIES SUBJECT INDEX

The possibilities of increasing gas turbine efficiency	THERMOBLECTRIC COOLING Haximum cold-generation capacity of thermoelectric
25 p0032 A80-13024 Thermodynamic and structural properties of	refrigerators 25 p0035 A80-14594
Lawi/5-y/Aly compounds and their related hydrides	THERBOBLECTRIC GENERATORS
25 p0033 A80-13200 Maximum cold-generation caracity of thermoelectric	Concentration ratio and efficiency in thermophotovoltaics
refrigerators	25 p0005 A80-11336
25 p0035 A80-14594 Thermodynamics of water-splitting for hydrogen	Cooling a radioisotcpe power source in the Space Shuttle Orbiter
production 25 p0052 A80-17575	[ASME PAPER 79-ENAS-44] 25 p0039 A80-15267
Performance characteristics of point-focusing	General-purpose heat source project space nuclear safety program and radioisotopic terrestrial
distributed-receiver solar Brayton systems	safety program plutonium oxide
[AIAA PAPEE 80-0293] 25 p0063 A80-18298 SOLSTEP - A computer model for predicting the	[LA-7519-PR] 25 p0118 N80-11889 Solar central receiver prototype heliostat CDRL
thermodynamic and economic performance of solar	item B.D., volume 1
thermal power plants	[SAN-1605/7-VOL-1] 25 p0146 N80-13700
[ASME PAPER 79-WA/SOL-12] 25 p0068 A80-18579 Residential solar heat pump systems - Thermal and	solar thermal rower systems advanced solar thermal technology project, advanced subsystems
economic performance	development
[ASME PAPER 79-WA/SOL-25] 25 p0070 A80-18591 Novel gas turbine cycles with coal gasification	[ NASA-CR-162546 ] 25 p0155 N80-14491 THERMORLECTRIC POWER GENERATION
[ASME PAPER 79-WA/ENER-6] 25 p0071 A80-18646	Solar electric generating system resource
Studies on carbon dioxide cycles for power	requirements
generation. I - Fundamental condensation cycles 25 p0083 A80-19716	25 p0005 A80-11341 Thermoelectric ocean thermal energy conversion
Development of combustion data to utilize low Btu	[SERI/TF-35-254] 25 p0124 N80-12564
gases as industrial process fuels. Project 61004 special report no. 4:	Photothermal conversion of solar energy into electricity
High-forward-momentum burner	[DOE-TR-159] 25 p0130 N80-12612
[PE-2489-33] 25 p0093 N80-10390	Assessment of Stirling engine potential in total
Screening evaluation of novel power cycles integrated with gasification plants	and integrated energy systems [ANL/ES-76] 25 p0140 N80-13636
[EPBI-AF-1002] 25 p0096 N80-10605	Baseline design of the thermoelectric reactor
Sensitivity study of Brayton cycle power plant performance	space power system
[SAND-78-8020] 25 p0098 N80-10626	[LA-UR-79-1242] 25 p0149 N80-13906 A cesium TELEC experiment at Lewis Research Center
Economic performance of passive solar heating: A	[NASA-CR-159729] 25 p0151 N80-14386
preliminary analysis [LA-UR-78-2861] 25 p0 100 N80-10645	THERMOBLECTRICITY Nonequilibrium thermodynamics of fuel cells - Heat
Heat loss reduction techniques for annular solar	release mechanisms and voltage
receiver designs [SAND-78-1769] 25 p0111 N80-11581	THERMONUCLEAR POWER GENERATION 25 p0084 A80-20274
Design considerations for a proposed passive	Status of inertial confinement fusion
vacuum solar annular receiver [SAND-78-0982]	THERMONUCLEAR BEACTIONS 25 p0016 A80-11976
[SAND-78-0982] 25 p0111 N80-11582 Photothermal conversion surface measurements using	Effect of kinetics of thermonuclear reaction
photoacoustic and photothermal spectroscopies	products upon D-T plasma parameters
[IS-M-202] 25 p0129 N80-12611 Evaluation of combined photovoltaic/thermal	25 p0007 A80-11544 Optimization of neutron yield in conical system at
collectors	explosion-induced compression .
[COO-4577-8] 25 p0143 N80-13665 Thermal performance of buildings and building	25 p0007 A80-11545 Experimental studies of neutron multiplication
envelope systems: An annotated bibliography	from beryllium /n, 2n/ reaction in CTR blankets
[LBL-8925] 25 p0145 N80-13680 Assessment of the state of technology of	25 p0081 A80-19662
automotive Stirling engines	THERMOPHYSICAL PROPERTIES  The influence of thermophysical properties on the
[NASA-CR-159631] 25 p0150 N80-13989	design and sizing of geothermal power plant
Results of thermal performance evaluation of the Owens-Illinois sunpack liquid solar collector at	components [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593
indoor conditions	THERMOSIPHONS
[NASA-CR-161189] 25 p0156 N80-14500 THERHODYNAMIC PROPERTIES.	Development, testing and certification of the sigma research, maxi-therm-5-101 thermosyrhon
A study of the thermal effect that radiant energy	heat exchanger
produces on a mass of water Spanish thesis	[NASA-TM-78245] 25 p0156 N80-14499
25 p0040 A80-15653 Thermodynamic behaviour of the Bagnore geothermal	THERMOSTATS Development and testing of the Solar Control
field	Corporation modular controller and Solarstat
25 p0075 A80-19205 Dynamics of diesel fuel combustion in turbulent flow	subsystem [NASA-TM-78243] 25 p0156 N80-14498
25 p0091 N80-10074	THETA PINCH
Thermal performance evaluation of the Suncatcher SH-11 (liquid) solar collector	End plugging of a hot linear theta pinch
[NASA-CB-161253] 25 p0156 N80-14497	25 p0055 A80-17824 Recent developments in linear theta-pinch and
THERMODY NAMICS	laser-heated solenoid research
Noniterative solution of heat transfer equation of fluid flow in solar collector	THIAZINE (TRADEMARK) 25 p0055 A80-17825
[ASME PAPER 79-WA/SOL-24] 25 p0C68 A80-18577	Photophysical and chemical processes affecting the
Multi-year plan for thermal and mechanical energy storage program	stability of the thiazine dye-iron system in hydrogen production
[DOE/ET-0109] 25 p0142 N80-13658	25 p0033 A80-13198
Experimental verification of the mercury-iodine thermochemical cycle for the production of	THIN PILMS Improvements in the performance of a low cost thin
hydrogen from water, ANL-4	film solar cell
[CONF-780807-11] 25 p0150 N80-14265	. 25 p0018 A80-11989

SUBJECT INDEX TORAMAK DEVICES

Optical and electrical investigations on annealed

Tearing modes in a plasma with magnetic braiding
25 p0006 A80-11349
A simple model describing hydrogen re-cycling in indium oxide selective ccatings produced by spray pyrolysis 25 p0023 A80-12747 Effect of thin oxide layer on the current voltage fusion experiments and its influence on discharge behaviour relations of Schottky barrier solar cells 25 p0022 A80-12453 25 p0026 A80-12772 Reliability studies on thin film solar cells for Review of tokamak experiments 25 p0034 A80-13342 Volt-second consumption during the start-up phase satellite application 25 p0027 A80-12775 of PLT Copper diffusion and photovoltaic mechanisms at Cu-CdS contact Selected topics on surface effects in fusion devices - Neutral-beam injectors and beam-direct 25 p0033 A80-13204 Calculated and measured efficiencies of thin-film shallow-homojunction GaAs solar cells on Ge converters 25 p0043 A80-16262 Particle beam systems in plasma diagnostics 25 p0045 A80-16718 Hagnetic field design for a large tokamak 25 p0039 A80-15141 Thin film problems and research in energy systems
[CONF-761168-SUMM] 25 p0147 N80-13705
Corrosion protection of solar-collector heat 25 p0046 A80-16760 Plasma physics and controlled nuclear fusion exchangers with electrochemically deposited films
[COO-4297-1] 25 p0171 N80-15569
THIN WALLED SHELLS research 1978; Proceedings of the Seventh International Conference, Innstruck, Austria, August 23-30, 1978. Volumes 1, 2 & 3 25 p0053 A80-17751 The design of a thin walled toroidal vacuum chamber for a large RFP experiment --- Reversed Results from the Divertor Injection Tokamak Field Pinch Experiment /DITE/ 25 p0054 A80-17754 Accumulation of impurities and stability behaviour 25 p0082 A80-19676 THOMSON SCATTERING Multichannel Thomson scattering system for the tokamak TFR based on two-detector spectrum in the high-density regime of Pulsator 25 p0054 A80-17759 analyzers High-beta tokamaks A multi-pulse ruby laser recording of the temporal evolution of plasma parameters by light scattering 25 p0084 A80-20165 25 p0054 A80-17789 Dependence of ideal MHD beta limits on current density and pressure profiles 25 p0054 A80-17790 THYRISTORS MHD stability limits on high-beta tokamaks Unconventional circuits for static voltage 25 p0054 A80-17797 What is the mechanism responsible for the precursors of internal disruptions --- as transformers [BMFT-FB-T-78-26] 25 p0107 N80-11368 TIDAL WAVES observed in Tokamak plasma Transmission of tidal energy over a plateau 25 p0072 A80-18721 25 p0054 A80-17807 Fast-magnetosonic-wave excitation in large-tokamak plasmas Harnessing power from tides - State of the art
25 p0045 A80-16658
Waves, currents, tides - Problems and prospects
25 p0049 A80-17134 25 p0056 A80-17855 Low-aspect-ratio limit of the toroidal reactor -The spheromak 25 p0058 A80-17876 Boundary layer analysis of cold-blanket systems Ocean energy - Forms and prospects 25 p0061 A80-18162 25 p0058 A80-17877 Transmission of tidal energy over a plateau 25 p0072 A80-18721 The Elmo Bumpy Torus /EBI/ reactor The Elmo Bumpy Torus /EBJ/ reactor
25 p0058 A80-17883

Impact of technology and maintainability on
economic aspects of tokamak power plants
25 p0059 A80-17884 TIDES Tidal pressure response as a reservoir engineering tool [UCRL-830121 25 p0141 N80-13647 Concept of tokamak-type reactor with TIME SERIES ANALYSIS
Wind time series analyses for WECS applications
Wind 77-17011 25 p0132 N80-12709 high-temperature blanket 25 p0059 A80-17885 Summary on reactor systems --- tokamak devices 25 p0059 A80-17894 Multichannel Thomson scattering system for the TIN OXIDES The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell -Characteristics and loss mechanisms tokamak TFR based on two-detector spectrum analyzers 25 p0006 A80-11368 Efficient indium tin oxide/polycrystalline silicon 25 p0060 A80-18111 Testing and performance of the 30 kA ohmic heating system for ASDEX --- tokamak experiment with solar cells 25 p0039 A80-15136 axisymmetric diverter TIRES 25 p0078 A80-19585 Poloidal magnetic field design of a pulsed tokamak. Ranking tires using a transient speed-time cycle [PB-297756/9] 25 p0108 N80-1 25 p0108 N80-11487 reactor 25 p0078 A80-19592 Ion-stimulated sorption of nitrogen on a continuously deposited titanium film SISYFUS - A simulation model for systematic analyses of fusion power plants 25 p0051 A80-17252 25 p0079 A80-19597 TITABLUM NITRIDES Doublet III neutral beam injection system overview Ion-stimulated sorption of nitrogen on a and status report continuously deposited titanium film 25 p0079 A80-19599 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks 25 p0051 A80-17252 TITABIUM OXIDES Hydrogen evolution from water using solid carbon and light energy 25 p0079 A80-19600 Design of antennae for R.F. power coupling to tokamak plasma in the ion cyclotron range of 25 p0032 A80-13109 TOKAMAK DEVICES frequency 25 p0079 A80-19608 Refueling by means of pellets - Ablation rate and Power supply requirements for a tokamak fusion reactor injection velocity considerations --- effects on plasma confinement in tokamak 25 p0003 A80-10474 Nonlinear modification of resonance-cone 25 p0080 A80-19611 trajectories --- due to ponderomotive force in cylindrical plasma Electrical power system to TFTR poloidal coils 25 p0080 A80-19620 25 p0006 A80-11347

TOROIDAL PLASMAS SUBJECT INDEX

25 p0080 A80-19624

25 p0C81 A80-19657

Influence of the scaling of plasma confinement on the economy and unit size of ignited toroidal

SISYFOS - A simulation model for systematic

analyses of fusion power plants

25 p0079 A80-19594

25 p0079 A80-19597

Constant current and constant voltage excitation of large coils by flywheel-generator-converter --- for fusion reactors

Neutronics in the toroidal belt-geometry of a screw pinch reactor

Blanket and power conversion system of NUWMAK ---Doublet III neutral beam injection system overview tokamak reactor and status report 25 p0081 A80-19658 25 p0079 A80-19599 Design of antennae for R.F. power coupling to tokamak plasma in the ion cyclotron range of A system for the control of tritium losses in primary and steam circuits of a fusion power plant 25 p0082 A80-19668 Main power supplies for large toroidal fusion frequency 25 p0079 A80-19608 The combined d.c. power supply for JET --- Joint 25 p0082 A80-19670 Spatial and depth distribution of deuterium, oxygen, and limiter materials on the liner of TPR 400 European Torus 25 p0080 A80-19621 Ignitron switching problems associated with a large reversed field pinch experiment 25 p0C82 A80-19682 25 p0081 A80-19629 Status of the JET project --- Joint European Torus 25 p0082 A80-19708 Neutronics in the toroidal belt-geometry of a screw pinch reactor JT-60 project --- tokamak fusion reactor design 25 p0081 A80-19657 Spatial and depth distribution of deuterium, oxygen, and limiter materials on the liner of TPR 400 analysis 25 p0082 A80-19709 Power supply requirements for a tokamak fusion 25 p0082 A80-19682 Status of the JET project --- Joint European Torus 25 p0082 A80-19708 Effect of finite beta on drift-wave turbulence and [ANL/PPP/TM-119] 25 p0104 N80-10918 United States magnetic fusion energy program
[DOE/ET-0072] 25 p0126 N80-12583 fect of finite peta on white base the particle confinement --- of toroidal plasma 25 p0084 A80-20158 Conceptual design of a Demonstration Tokamak Hybrid Reactor (DTHR)
[WPPS-TME-107] 25 p0132 N80-12898 TOROIDAL SHRLLS TOROIDAL PLASMAS The design of a thin walled toroidal wacuum chamber for a large RFP experiment --- Reversed Measurements of the density fluctuations using the microwave scattering method --- for toroidal Field Finch 25 p0082 A80-19676 plasmas 25 p0046 A80-16731 TOXICITY Dimensions/NBS, volume 63, no. 6, June 1979
[PB-297836/9] 25 p0105 N80-10975
TRACE ELEMENTS Magnetic field design for a large tokamak 25 p0046 A80-16760 Results from the Divertor Injection Tokamak Experiment /DITE/ Trace elements from coal combustion: Atmospheric 25 p0054 A80-17754 emissions MHD stability limits on high-beta tokamaks 25 p0054 A80-17797 [ICTIS/TR-05] 25 p0106 N80-11180 TRACKING (POSITION)
An electronic device for intermittent tracking ---What is the mechanism responsible for the precursors of internal disruptions --- as observed in Tokamak plasma of sun in solar collectors 25 p0027 A80-12782 25 p0054 A80-17807 TRAFFIC CONTROL New technology and vehicle operation on roadways 25 p0037 A80-14702 LASL toroidal reversed-field pinch programme
25 p0054 A80-17809
Studies on plasma formation, relaxation and Studies on plasma formation, TRAILERS heating in a reversed-field pinch Reduction of aerodynamic drag and fuel consumption 25 p0054 A80-17811 for tractor-trailer vehicles Principles of plasma heating and confinement in a compact toroidal configuration 25 p0046 A80-16948 TRAJECTORY ANALYSIS 25 p0C55 A80-17822 Nonlinear modification of resonance-cone Heating, confinement and fluctuations in the CLEO trajectories --- due to ponderomotive force in cylindrical plasma stellarator 25 p0055 A80-17826 25 p0006 A80-11347 Current equilibrium and effective ion charge in Analysis of GaAs and Si solar cell arrays for earth orbital and orbit transfer missions L-2 stellarator plasma 25 p0055 A80-17829 Fast-magnetosonic-wave excitation in large-tokamak [NASA-TM-81383] 25 p0167 N80-15204 TRANSFORMERS  $$25\ p0\,056\ A80-17855$  Low-aspect-ratio limit of the toroidal reactor -Heat pipe cooled power magnetics [NASA-CR-159659]
TRANSISTOR AMPLIFIERS 25 p0136 N80-13362 The spheromak Analysis of S-band solid-state transmitters for 25 p0058 A80-17876 Concept of tokamak-type reactor with the solar power satellite [NASA-CR-160320] high-temperature blanket 25 p0096 N80-10600 TRANSITION METALS 25 p0059 A80-17885 Pusion technology 1978; Proceedings of the Tenth Symposium, Padua, Italy, September 4-9, 1978. Volumes 1 & 2 Utilization of transition metal phosphorus trisulphides as battery cathodes 25 p0012 A80-11858 25 p0C78 A80-19581 Testing and performance of the 30 kA ohmic heating TRANSLATIONAL MOTION Lateral and tilt whirl modes of flexibly mounted flywheel systems --- for energy storage [SAND-78-7070] 25 p0115 M80-11622 system for ASDEX --- tokamak experiment with axisymmetric diverter 25 p0078 A80-19585 A new high beta reversed field pinch machine 25 p0078 A80-19587 Numerical computations in the design of compact TRANSMISSION EPPICIENCY A 30-ps Josephson current injection logic /CIL/ 25 p0030 A80-12853 TRANSMISSION LINES Pare propagation in a dc superconducting calle.
Part 1: Analysis
[LA-UR-79-226] 25 p0151 N80ignition experiments --- of D-T toroidal plasma beating 25 p0078 A80-19589 25 p0151 N80-14346 SUBJECT INDEX TURBOGENERATORS

TRANSMISSIONS (MACHINE ELEMENTS)		Possible improvements to a basic cellular	thin
Impact of flywheel-transmissions of	n automobile	blanket fusion reactor configuration	
performance: A logical basis for		25 p0081	A80-19664
	25 p0137 N80-13480	A system for the control of tritium losses	in
TRANSMITTER RECEIVERS Minimum cost transmitter-receiver	antenna nairs	primary and steam circuits of a fusion po	A80-19668
antenna design for the satel	lite solar power	Evaluation of fuel resources and requirement	ats for
station using optimal control the		the magnetic fusion energy program	
	25 p0094 N80-10414	[MLM-2419] 25 p0164	180-14570
TRANSPORT PROPERTIES		TRUCKS	
Results from the Divertor Injection	n Tokamak	Reduction of aerodynamic drag and fuel con-	sumption
Experiment /DITE/	25 p0054 A80-17754	for tractor-trailer vehicles	*00-16040
One- and two-dimensional heating a		Demand for special performance vehicles, 19	80-16948 375 - 2025
fusion synfuel blankets			N80-12960
	25 p0104 N80-10922	Liquid hydrogen as an automotive fuel	
Survey and description of transpor			N80-13297
packed-beds for thermal emer		TUBE HEAT EXCHANGERS	
TRANSPORT THEORY	25 p0121 N80-12340	Experimental and analytical CIEC studies at [CCNF-790631-1] 25 p0143	
Drift wave stability and transport	theory in	Development, testing and certification of	N80-13666
fusion systems		sigma research, maxi-therm-S-101 thermosy	
	25 p0056 A80-17846	heat exchanger	
TRANSPORTATION			N80-14499
Assessment of synfuel transportati		TUNNEL DIODES	
[PNL-2768] Survey of liquid hydrogen containe	25 p0092 N80-10382	AlGals tunnel diode	100 16700
highway vehicle fuel system appl		TURBINE BLADES	A80-16799
	25 p0092 N80-10383	Aeroelastic stability and response of horiz	zontal
Disaggregating PIES fuel forecasts		axis wind turbine blades	
PIES transportation model data b	ase, and other	25 p0032	A80-13116
technical services	25 -0448 200 44642	On the weathervaning of wind turbines	
[TID-29000] TRANSPORTATION ENERGY	25 p0114 N80-11612		A80-16952
The electric trolley bus - Revisit	ed	A vortex model of the Darrieus turbine - An analytical and experimental study	1
	25 p0002 A80-10321		A80-18620
Forecasting automobile fleet fuel		Evaluation of feasibility of prestressed co	
	25 p0002 A80-10324	for use in wind turbine blades	
Development of a sodium/sulphur ba	ttery for rail		N80-15553
applications	25 -0021 300-12002	TURBINE PUMPS	
The role of technology as air tran	25 p0031 A80-13003	New concepts for converting the energy in 1	
the fuel situation	apoleacion faces	medium-temperature liquids, with emphasis geothermal applications	o o n
	25 p0037 A80-14700		N80-12570
Society and Merospace Technology W	orkshop, Los	TURBINE WHEELS	
Angeles, Calif., November 15, 19	79, Proceedings	The pedal wind turbine	
Angeles, Calif., November 15, 19	79, Proceedings 25 p0037 A80-14701	The pedal wind turbine 25 p0008	A80-11645
Angeles, Calif., November 15, 19  New technology and vehicle operati	79, Proceedings 25 p0037 A80-14701 on on roadways	The pedal wind turbine 25 p0008 On the weathervaning of wind turbines	
Angeles, Calif., November 15, 19 New technology and vehicle operati	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702	The pedal wind turbine 25 p0008 On the weathervaning of wind turbines 25 p0047	A80-11645 A80-16952
Angeles, Calif., November 15, 19  New technology and vehicle operati  Technico economic study of the use	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702	The pedal wind turbine 25 p0008 On the weathervaning of wind turbines 25 p0047 TURBINES	A80-16952
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702	The pedal wind turbine 25 p0008 On the weathervaning of wind turbines 25 p0047	A80-16952
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport Ethyl alcohol production and use a	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generallysis and design report [NASA-CR-159497] 25 p0109	A80-16952 erator N80-11558
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES Executive summary: Mod-1 wind turbine generally sis and design report [NASA-CR-159497] Hybrid staging of geothermal energy converses	A80-16952 erator N80-11558
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport Ethyl alcohol production and use a Book	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES Executive summary: Mod-1 wind turbine generallysis and design report [NASA-CR-159497] Bybrid staging of geothermal energy converse processes	A80-16952 erator N80-11558 sion
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport Ethyl alcohol production and use a Book Osmotically pumped energy transpor	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally sis and design report  [NASA-CR-159497] Hybrid staging of geothermal energy converse processes [UCID-17949] 25 p0125	A80-16952 erator N80-11558 sion N80-12569
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book Osmotically pumped energy transpor [ATAA PAPER 80-0210]	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES Executive summary: Mod-1 wind turbine generally sistem and design report [NASA-CR-159497] Hybrid staging of geothermal energy converses processes [UCID-17949] 25 p0125 Efforts on the economic analysis of Darrier	A80-16952 erator N80-11558 sion N80-12569
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [AIAA PAPER 80-0210] Electric and hybrid vehicles: Com	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES Executive summary: Mod-1 wind turbine generally sis and design report [NASA-CR-159497] Hybrid staging of geothermal energy converses [UCID-17949] [UCID-17949] Efforts on the economic analysis of Darried vertical axis wind turbines	A80-16952 erator N80-11558 sion N80-12569
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAM PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004]	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES Executive summary: Mod-1 wind turbine generally sis and design report [NASA-CR-159497] Hybrid staging of geothermal energy converses [UCID-17949] [UCID-17949] Efforts on the economic analysis of Darried vertical axis wind turbines	A80-16952 erator N80-11558 sion N80-12569 us
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [AIAA PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICLES	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES Executive summary: Mod-1 wind turbine generally and design report [NASA-CR-159497] Hybrid staging of geothermal energy converses [UCID-17949] [UCID-17949] Efforts on the economic analysis of Darried vertical axis wind turbines [SAND-78-1851C] Induction and synchronous machines for verticals wind turbines	A80-16952 erator N80-11558 sion N80-12569 s N80-12579
Angeles, Calif., November 15, 19  New technology and vehicle operati  Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAA PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOZ/ERD-0004]  TRAPFED PARTICLES Non-stochastic heating of magnetiz	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally and design report [NASA-CR-159497] 25 p0109  Hybrid staging of geothermal energy converses [UCID-17949] 25 p0125  Efforts on the economic analysis of Darriet vertical axis wind turbines [SAND-78-1851C] 25 p0126  Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] 25 p0144	A80-16952 erator N80-11558 sion N80-12569 IS N80-12579 ical
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAM PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICIES Non-stochastic heating of magnetiz electrostatic wave	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally sisted and design report [NASA-CR-159497] Hybrid staging of geothermal energy converses [UCID-17949] Efforts on the economic analysis of Darriet vertical axis wind turbines [SAND-78-1851C] Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converses [SAND-79-7017]	A80-16952 erator N80-11558 sion N80-12569 s N80-12579 ical
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOF/ERD-0004] TRAPFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally and design report [NASA-CR-159497]  Hybrid staging of geothermal energy converses [UCID-17949]  Efforts on the economic analysis of Darried vertical axis wind turbines [SAND-78-1851c]  Induction and synchronous machines for verticals wind turbines [SAND-79-7017]  Lawrence Livermore Laboratory geothermal energy contents of the development of the de	A80-16952 erator N80-11558 sion N80-12569 s N80-12579 ical
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAM PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICIES Non-stochastic heating of magnetiz electrostatic wave	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally and design report  [NASA-CR-159497] 25 p0109  Hybrid staging of geothermal energy converses  [UCID-17949] 25 p0125  Efforts on the economic analysis of Darriet vertical axis wind turbines  [SAND-78-1851C] 25 p0126  Induction and synchronous machines for vertical axis wind turbines  [SAND-79-7017] 25 p0144  Lawrence Livermore Laboratory geothermal en program: A status report on the develops the Total-Flow concept	A80-16952 erator N80-11558 sion N80-12569 IS N80-12579 .ical N90-13675 ergy ent of
Angeles, Calif., November 15, 19  New technology and vehicle operati  Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210]  Electric and hybrid vehicles: Com phase 3 planning [DOFERD-0004]  TRAPFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally and design report  [NASA-CR-159497] 25 p0109  Hybrid staging of geothermal energy converses  [UCID-17949] 25 p0125  Efforts on the economic analysis of Darriet vertical axis wind turbines  [SAND-78-1851C] 25 p0126  Induction and synchronous machines for vertical axis wind turbines  [SAND-79-7017] 25 p0144  Lawrence Livermore Laboratory geothermal en program: A status report on the develops the Total-Flow concept	A80-16952 erator N80-11558 sion N80-12569 IS N80-12579 cical N90-13675 ergy ent of
Angeles, Calif., November 15, 19  New technology and vehicle operati  Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [AIAA PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004]  TRAPFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally and design report  [NASA-CR-159497] 25 p0109  Hybrid staging of geothermal energy converse processes  [UCID-17949] 25 p0125  Efforts on the economic analysis of Darried vertical axis wind turbines  [SAND-78-1851C] 25 p0126  Induction and synchronous machines for vertical axis wind turbines  [SAND-79-7017] 25 p0144  Lawrence Livermore Laboratory geothermal en program: A status report on the development of the development o	A80-16952 erator N80-11558 sion N80-12569 IS N80-12579 cical N90-13675 ergy ent of N80-14529 ocratories N80-14538
Angeles, Calif., November 15, 19  New technology and vehicle operati  Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210]  Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004]  TRAPFED PARTICIBS  Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES  A pistonless Stirling engine - The heat engine  TREES (PLANTS)	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally sisted and design report [NASA-CR-159497] Hybrid staging of geothermal energy converse processes [UCID-17949] Efforts on the economic analysis of Darrieu vertical axis wind turbines [SAND-78-1851C] Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converse program: A status report on the development of the Total-Plow concept [UCRL-50046-77] Darrieus wind turbine program at Sandia Lai [SAND-79-0997C] Alternate cycles applied to ocean thermal energy contents and the sandia and the sandia contents applied to ocean thermal contents are sandia to the sandia and the sandia contents applied to ocean the sandia and the sandia contents applied to ocean the sandia and the sandia contents applied to ocean the sandia contents are sandia to the sandia contents applied to ocean the sandia the sandia contents applied to ocean the s	A80-16952 erator N80-11558 sion N80-12569 IS N80-12579 cical N90-13675 ergy ent of N80-14529 ocratories N80-14538
Angeles, Calif., November 15, 19  New technology and vehicle operati  Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210]  Electric and hybrid vehicles: Com phase 3 planning [DOF/ERD-0004]  TRAPFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally and design report [NASA-CR-159497] Hybrid staging of geothermal energy converses [UCID-17949] Efforts on the economic analysis of Darriet vertical axis wind turbines [SAND-78-1851C] Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converses axis wind turbines [SAND-79-7017] Lowrence Livermore Laboratory geothermal energy converses axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converses axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converses axis wind turbine program at Sandia Lal [SAND-79-0997C] Darrieus wind turbine program at Sandia Lal [SAND-79-0997C] Sandia Lal [SAND-79-0997C] Sp 0160 Alternate cycles applied to ocean thermal econversion	N80-16952 Prator N80-11558 Sion N80-12569 SN80-12579 Initial N90-13675 Herry
Angeles, Calif., November 15, 19  New technology and vehicle operati  Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [AIAA PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004]  TRAPFED PARTICLES Non-stochastic beating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel l growing plant materials for fuel	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally and design report  [NASA-CR-159497]  Bybrid staging of geothermal energy converses [UCID-17949]  Efforts on the economic analysis of Darried vertical axis wind turbines  [SAND-78-1851C]  Induction and synchronous machines for vertical axis wind turbines  [SAND-79-7017]  Lawrence Livermore Laboratory geothermal en program: A status report on the development of the de	A80-16952 erator N80-11558 sion N80-12569 IS N80-12579 cical N90-13675 ergy ent of N80-14529 ocratories N80-14538
Angeles, Calif., November 15, 19  New technology and vehicle operati  Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [AIAA PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004]  TRAPFED PARTICLES Non-stochastic beating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel l growing plant materials for fuel	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally sisted and design report [NASA-CR-159497] Hybrid staging of geothermal energy converse processes [UCID-17949] Efforts on the economic analysis of Darried vertical axis wind turbines [SAND-78-1851c] Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converse for the Total-Flow concept [UCRL-50046-77] Darrieus wind turbine program at Sandia Lai [SAND-79-0997c] Alternate cycles applied to ocean thermal conversion [SERI/TF-34-180] 25 p0172  TURBOGENERATORS	N80-16952 Prator N80-11558 Sion N80-12569 SN80-12579 Initial N90-13675 Herry
Angeles, Calif., November 15, 19  New technology and vehicle operati  Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [AIAA PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004]  TRAFFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally and design report  [NASA-CR-159497]  Bybrid staging of geothermal energy converses [UCID-17949]  Efforts on the economic analysis of Darried vertical axis wind turbines  [SAND-78-1851C]  Induction and synchronous machines for vertical axis wind turbines  [SAND-79-7017]  Lawrence Livermore Laboratory geothermal en program: A status report on the development of the de	N80-16952 Prator N80-11558 Sion N80-12569 SN80-12579 Initial N90-13675 Herry
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICIES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ large reversed field pinch exper	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 tt system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a iment	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally sisted and design report [NASA-CR-159497] Hybrid staging of geothermal energy converse processes [UCID-17949] Efforts on the economic analysis of Darried vertical axis wind turbines [SAND-78-1851c] Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converse program: A status report on the development of the Total-Flow concept [UCRL-50046-77] Darrieus wind turbine program at Sandia Lail [SAND-79-0997c] Alternate cycles applied to ocean thermal conversion [SERI/TF-34-180]  EXPERIMENTORS  Experimental demonstration of the diffuser-augmented wind turbine concept	N80-16952 erator N80-11558 sion N80-12569 IS N80-12579 cical N90-13675 ergy ent of N80-14529 oratories N80-14538 nergy
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ large reversed field pinch exper	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally six and design report [NASA-CR-159497] Bybrid staging of geothermal energy converses [UCID-17949] Efforts on the economic analysis of Darrieu vertical axis wind turbines [SAND-78-1851c] Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converses axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy conversion [SAND-79-0997C] Darrieus wind turbine program at Sandia Lal [SAND-79-0997C] Darrieus wind turbine program at Sandia Lal [SAND-79-0997C] SENDITE TUBBOGRENERATORS Experimental demonstration of the diffuser-augmented wind turbine concept 25 p0007 Electricity generation from jet-stream wind	N80-16952 Prator N80-11558 Sion N80-12569 N80-12579 Prical N90-13675 Perry Pent of N80-14529 Perratories N80-14538 Perry N80-15571
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [AIAA PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ large reversed field pinch exper	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a iment 25 p0081 A80-19629	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally six and design report [NASA-CR-159497] Bybrid staging of geothermal energy converses processes [UCID-17949] Sefforts on the economic analysis of Darriev vertical axis wind turbines [SAND-78-1851C] Sefforts on the economic analysis of Darriev vertical axis wind turbines [SAND-78-1851C] Sefforts on the economic analysis of Darriev vertical axis wind turbines [SAND-79-1017] Lavier axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal exprogram: A status report on the development of the deffuser-augmented wind turbine concept Sepondry Sepo	N80-16952 erator N80-11558 sion N80-12569 IS N80-12579 cical N90-13675 ergy ent of N80-14529 oratories N80-14538 nergy
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICIES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ large reversed field pinch exper  TRIODES The thermal triode constructio	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a iment 25 p0081 A80-19629	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally sisted and design report [NASA-CR-159497] Hybrid staging of geothermal energy converse processes [UCID-17949] Efforts on the economic analysis of Darried vertical axis wind turbines [SAND-78-1851c] Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converse axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy conversion [UCRL-50046-77] Darrieus wind turbine program at Sandia Lail [SAND-79-0997c] Alternate cycles applied to ocean thermal conversion [SERI/TF-34-180] EXERTIFE-34-180]  EXPERIMENTORS Experimental demonstration of the diffuser-augmented wind turbine concept 25 p0007 Electricity generation from jet-stream wind 25 p0007 Prime mover for solar power plant	N80-16952 Prator N80-11558 Sion N80-12569 IS N80-12579 Prical N90-13675 Pricy Pent of N80-14529 Cratories N80-14538 Pricy N80-15571
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOFERD-0004] TRAPFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ large reversed field pinch exper  TRIODBS The thermal triode constructio controlling zone to heat pipe	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a iment 25 p0081 A80-19629	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally six and design report [NASA-CR-159497] Hybrid staging of geothermal energy converses processes [UCID-17949] Efforts on the economic analysis of Darriet vertical axis wind turbines [SAND-78-1851C] Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converses axis wind turbines [SAND-79-7017] UCRIL-50046-77] Darrieus wind turbine program at Sandia Lal [SAND-79-0997C] Alternate cycles applied to ocean thermal conversion [SERI/TF-34-180] TURBOGENERATORS Experimental demonstration of the diffuser-augmented wind turbine concept 25 p0007 Electricity generation from jet-stream wind 25 p0007 Prime mover for solar power plant	A80-16952 erator N80-11558 sion N80-12569 N80-12579 ical N90-13675 ergy ent of N80-14529 oratories N80-14538 energy N80-15571 A80-11643 A80-11644 A80-12752
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICIES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ large reversed field pinch exper  TRIODES The thermal triode constructio controlling zone to heat pipe	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a iment 25 p0081 A80-19629 n by adding 25 p0037 A80-14675	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally sisted and design report [NASA-CR-159497] Hybrid staging of geothermal energy converse processes [UCID-17949] Efforts on the economic analysis of Darried vertical axis wind turbines [SAND-78-1851c] Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converse wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy conversion [SAND-79-0997c] Alternate cycles applied to ocean thermal conversion [SERI/TF-34-180]  EXPERIMENS  Experimental demonstration of the diffuser-augmented wind turbine concept 25 p0007 Electricity generation from jet-stream wind 25 p0007 Prime mover for solar power plant 25 p0024 Thermodynamic analysis of thermomechanical energy converters operating in conjunction	A80-16952 erator N80-11558 sion N80-12569 s N80-12579 ical N90-13675 ergy ent of N80-14529 oratories N80-14538 energy N80-15571  A80-11643 A80-11644 A80-12752 solar
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ large reversed field pinch exper  TRIODES The thermal triode constructio controlling zone to heat pipe  TRITIUM Tandem mirror reactors for con	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a iment 25 p0081 A80-19629 in by adding 25 p0037 A80-14675 trolled fusion	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally sisted and design report [NASA-CR-159497] Hybrid staging of geothermal energy converses processes [UCID-17949] Efforts on the economic analysis of Darrieu vertical axis wind turbines [SAND-78-1851c] Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converses axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy condents [UCIRL-50046-77] Darrieus wind turbine program at Sandia Lalles [SAND-79-0997C] Alternate cycles applied to ocean thermal enconversion [SPRI/TF-34-180] SPRI/TF-34-180] Experimental demonstration of the diffuser-augmented wind turbine concept 25 p0007 Electricity generation from jet-stream wind 25 p0007 Prime mover for solar power plant 25 p0024 Thermodynamic analysis of thermomechanical energy converters operating in conjunction solar cells	A80-16952 erator N80-11558 sion N80-12569 s N80-12579 ical N80-13675 ergy sent of N80-14529 oratories N80-14538 nergy N80-15571 A80-11643 a80-11644 A80-12752 solar n with
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [AIAA PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ large reversed field pinch exper  TRIODES The thermal triode constructio controlling zone to heat pipe  TRITIUM Tandem mirror reactors for con	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a iment 25 p0081 A80-19629 n by adding 25 p0037 A80-14675 trolled fusion 25 p0059 A80-17887	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally sisted and design report  [NASA-CR-159497] 125 p0109 Hybrid staging of geothermal energy converse processes  [UCID-17949] 25 p0125  Efforts on the economic analysis of Darried vertical axis wind turbines  [SAND-78-1851C] 25 p0126  Induction and synchronous machines for vertical axis wind turbines  [SAND-79-7017] 25 p0144  Lawrence Livermore Laboratory geothermal energy conversion  [UCRL-50046-77] 25 p0159  Darrieus wind turbine program at Sandia Laid  [SAND-79-0997C] 25 p0160 Alternate cycles applied to ocean thermal conversion  [SERI/TF-34-180] 25 p0172  TUBBOGENERATORS  Experimental demonstration of the diffuser-augmented wind turbine concept 25 p0007  Prime mover for solar power plant  Thermodynamic analysis of thermomechanical energy converters operating in conjunction solar cells	A80-16952 erator N80-11558 sion N80-12569 IS N80-12579 ical N90-13675 lergy lent of N80-14529 oratories N80-14538 energy N80-15571 A80-11643 A80-11644 A80-12752 solar on with A80-14592
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport  Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICIES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ large reversed field pinch exper  TRIODES The thermal triode constructio controlling zone to heat pipe  TRITIUM Tandem mirror reactors for con Are large concentration of atomic	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 tt system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a iment 25 p0081 A80-19629 n by adding 25 p0037 A80-14675 trolled fusion 25 p0059 A80-17887 H storable in	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally sisted and design report [NASA-CR-159497] Hybrid staging of geothermal energy converse processes [UCID-17949] Efforts on the economic analysis of Darried vertical axis wind turbines [SAND-78-1851c] Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converse wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy concept [UCRI-50046-77] Darrieus wind turbine program at Sandia Lail [SAND-79-0997c] Alternate cycles applied to ocean thermal conversion [SERI/TF-34-180] EXPERIMONS  Experimental demonstration of the diffuser-augmented wind turbine concept 25 p0007 Electricity generation from jet-stream wind 25 p0007 Prime mover for solar power plant 25 p0024 Thermodynamic analysis of thermomechanical energy converters operating in conjunctic solar cells 25 p0035 A low level wind measurement technique for	A80-16952 erator N80-11558 sion N80-12569 IS N80-12579 ical N90-13675 lergy lent of N80-14529 oratories N80-14538 energy N80-15571 A80-11643 A80-11644 A80-12752 solar on with A80-14592
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ large reversed field pinch exper  TRIODES The thermal triode constructio controlling zone to heat pipe  TRITIUM Tandem mirror reactors for con Are large concentration of atomic tritium-impregnated solid in H2	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a iment 25 p0081 A80-19629 in by adding 25 p0037 A80-14675 trolled fusion 25 p0059 A80-17887 H storable in below 0.10 K	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally sis and design report [NASA-CR-159497] Spoint staging of geothermal energy converse processes [UCID-17949] Efforts on the economic analysis of Darriet vertical axis wind turbines [SAND-78-1851c] Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] Lawrence Livermore Laboratory geothermal energy converse program: A status report on the development of the development of the stal-Flow concept [UCEL-50046-77] Darrieus wind turbine program at Sandia Lait [SAND-79-9997C] Alternate cycles applied to ocean thermal enconversion [SERI/TF-34-180] SEXPETIORS Experimental demonstration of the diffuser-augmented wind turbine concept 25 p0007 Electricity generation from jet-stream wind 25 p0007 Prime mover for solar power plant Thermodynamic analysis of thermomechanical energy converters operating in conjunctic solar cells  A low level wind measurement technique for turbine generator siting	A80-16952 erator N80-11558 sion N80-12569 s N80-12579 ical N90-13675 ergy sent of N80-14529 oratories N80-14538 nergy N80-11643 s A80-11644 A80-12752 solar on with A80-14592 wind
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ large reversed field pinch exper  TRIODES The thermal triode constructio controlling zone to heat pipe  TRITIUM Tandem mirror reactors for con Are large concentration of atomic tritium-impregnated solid in H2	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a iment 25 p0081 A80-19629 n by adding 25 p0037 A80-14675 trolled fusion 25 p0059 A80-17887 H storable in below 0.10 K 25 p0072 A80-18728	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine generally sisted and design report  [NASA-CR-159497] [NASA-CR-15497] [NASA-CR-15497] [NASA-CR-15497] [NASA-CR-15497	A80-16952 erator N80-11558 sion N80-12569 IN80-12579 ical N90-13675 lergy lent of N80-14529 oratories N80-14538 energy N80-15571  A80-11643 A80-11644 A80-12752 solar on with A80-14592 wind A80-16084
Angeles, Calif., November 15, 19 New technology and vehicle operati Technico economic study of the use methanol for road transport Ethyl alcohol production and use a Book  Osmotically pumped energy transpor [ATAN PAPER 80-0210] Electric and hybrid vehicles: Com phase 3 planning [DOE/ERD-0004] TRAPFED PARTICLES Non-stochastic heating of magnetiz electrostatic wave  TRAVELING WAVES A pistonless Stirling engine - The heat engine  TREES (PLANTS) Energy plantation for coromandel 1 growing plant materials for fuel  TRIGGER CIRCUITS Ignitron switching problems associ large reversed field pinch exper  TRIODES The thermal triode constructio controlling zone to heat pipe  TRITIUM Tandem mirror reactors for con Are large concentration of atomic tritium-impregnated solid in H2 Diffusion of tritium in neutron-ir microcrystalline Beta-Li5AlO4	79, Proceedings 25 p0037 A80-14701 on on roadways 25 p0037 A80-14702 of hydrogen and 25 p0042 A80-15993 s a motor fuel 25 p0050 A80-17241 t system 25 p0064 A80-18378 mercialization 25 p0151 N80-14349 ed plasma by 25 p0043 A80-16194 traveling wave 25 p0031 A80-13011 ittoral value in India 25 p0023 A80-12742 ated with a iment 25 p0081 A80-19629 n by adding 25 p0037 A80-14675 trolled fusion 25 p0059 A80-17887 H storable in below 0.10 K 25 p0072 A80-18728	The pedal wind turbine  25 p0008 On the weathervaning of wind turbines 25 p0047  TURBINES  Executive summary: Mod-1 wind turbine general summary: Mod-1 wind turbines [SAND-79-999]  Efforts on the economic analysis of Darrieu vertical axis wind turbines [SAND-78-1851c]  Induction and synchronous machines for vertical axis wind turbines [SAND-79-1017]  Lawrence Livermore Laboratory geotheraal endering the Total-Flow concept [UCEL-50046-77]  Darrieus wind turbine program at Sandia Laid [SAND-79-0997c]  Alternate cycles applied to ocean thermal endering summary: Mod-1 wind turbine concept  SERI/TF-34-180]  Experimental demonstration of the diffuser-augmented wind turbine concept 25 p0007  Flectricity generation from jet-stream wind summary: Mod-1 wind model wind turbine concept 25 p0007  Flerme mover for solar power plant 25 p0007  Thermodynamic analysis of thermomechanical energy converters operating in conjunctic solar cells  A low level wind measurement technique for turbine generator siting  Small solar thermal electric power plants of early commercial potential	A80-16952 erator N80-11558 sion N80-12569 IN80-12579 ical N90-13675 lergy lent of N80-14529 oratories N80-14538 energy N80-15571  A80-11643 A80-11644 A80-12752 solar on with A80-14592 wind A80-16084

TURBOMACHIBE BLADES SUBJECT INDEX

·	
Novel power generation cycles using coal gas [ASBE PAPER 79-WA/ENER-5] 25 p0071 A80-18645 Studies on carbon dioxide cycles for power	UNDERWATER RESOURCES  SPASAT demonstration experiments with the offshore oil, gas and mining industries
generation. I - Fundamental condensation cycles 25 p0083 A80-19716	[NASA-CB-162423] 25 p0108 N80-1153 Preliminary assessment of industrial needs for an
Open cycle air turbine solar thermal power system 25 p0083 A80-19989	advanced ocean technology [NASA-CR-162435] 25 p0118 N80-1174
Utilization of ocean heat for hydrogen production 25 p0086 A80-20686	UNITED KINGDOM  Development of renewable energy sources in the
The first small power system experiment, Phase 1: Engineering experiment no. 1 solar thermal	United Kingdom 25 p0017 180-1198
electric power plants [NASA-CR-162417] 25 p0095 N80-10596	UNITED NATIONS
Land-based application of an OTEC open-cycle power system	system 25 p0006 &80-1134
[CONP-790631-3] 25 p0144 N80-13676 TURBONACHINE BLADES	The United Nations' approach to geothermal resource assessment
Impact of new instrumentation on advanced turbine research	UNITED STATES OF AMERICA 25 p0076 A80-1920
[NASA-TM-79301] 25 p0166 N80-15133 TURBOMACHIBERY	United States energy alternatives to 2010 and beyond - The CONAES study
Turbomachinery options for an underground pumped hydroelectric storage plant	25 p0008 A80-1182 Review of scenarios of future U.S. energy use
[CONF-790803-50] 25 p0177 N80-15629 TURBOSHAFTS	25 p0009 A80-1183 A review of the U.S. wind energy programme
Development of an aircraft-derivative gas turbine	25 p0042 A80-1608
with high performance and large output 25 p0003 A80-10823 TURBULENT FLOW	Can alternative energy resources be brought into large-scale use in the United States by the year 2000
Peasible thermophysical conditions for gas receiver tubes in solar power stations	25 p0048 A80-1712 Another look at energy conservation
[ASME PAPER 79-WA/HT-37] 25 p0071 A80-18627	[IBL-7893] 25 p0097 N80-1061
Combustion and turbulence characteristics of cyclone combustors for burning low calorific	National energy plan 2 [DOE/TIC-10109] 25 p0097 N80-1061
value fuels [AIAA PAPER 80-0075] 25 p0076 A80-19275	Overview of geothermal energy in the United States
Dynamics of diesel fuel combustion in turbulent flow	Geothermal exploration methods and results:
TORBOLERT HEAT TRANSPER . 25 p0091 N80-10074	Inland states [LA-UB-79-665] 25 p0108 N80-1154
Studies in heat transfer: A Festschrift for B. R.	. Southeastern forum on appropriate technology
G. Eckert Book 25 p0036 A80-14655	[PB-298796/4] 25 p0118 N80-1196 Identification of a methodology for projecting
TWO PHASE FLOW Influence of wall-jet gas injection on	short-term crude petroleum production in the United States
liquid-metal MHD generator performance	[DOE/EIA-0103/14] 25 p0122 N80-1254
25 p0C47 A80-16996 Experimental two-phase liquid-metal	United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-1258
25 p0C47 A80-16996	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the
25 p0C47 A80-16996 Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128] 25 p0132 N80-12882	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and
25 p0C47 A80-16996 Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery
25 p0047 A80-16996 Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128] 25 p0132 N80-12882  U U.S.S.R. Soviet energy balances	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FB-2025-38] National energy act of 1978: Far western
25 p0C47 A80-16996 Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF]  25 p0099 N80-10634	United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-1258 Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FE-2025-38] 25 p0130 N80-1262 National energy act of 1978: Far western perspective. A study for the US Department of
25 p0C47 A80-16996 Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.B. Soviet energy balances [RAND/R-2257-DOF]  ULTRAHIGH PREQUENCIES Analysis of S-band solid-state transmitters for	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FE-2025-38] 25 p0130 N80-1262 National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCID-17944-REV-1] 25 p0132 N80-1295
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] 25 p0099 N80-10634 ULTRAHIGH PREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] 25 p0096 N80-10600	United States magnetic fusion energy program [DDE/ET-0072] 25 p0126 N80-1258 Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FE-2025-38] 25 p0130 N80-1262 National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCID-17944-REV-1] 25 p0132 N80-1295 Current U. S. petroleum situation and short-term supply/demand outlook
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] 25 p0099 N80-10634 ULTRANIGH PRIQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] 25 p0096 N80-10600 ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits	United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-1258 Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FE-2025-38] 25 p0130 N80-1262 National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCID-17944-REV-1] 25 p0132 N80-1295 Current U. S. petroleum situation and short-term
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF]  ULTRAHIGH PREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320]  ULTRASONIC TESTS  25 p0099 N80-10600  ULTRASONIC TESTS	United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-1258 Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FB-2025-38] 25 p0130 N80-1262 National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCLD-17944-REV-1] 25 p0132 N80-1295 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] 25 p0138 N80-1360 US energy flow in 1978
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] 25 p0099 N80-10634 ULTRABIGH FREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [PE-2025-38] National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCID-17944-REV-1] Current U. S. petroleum situation and short-term supply/demand outlook [DOE/FIA-0184/5] US energy flow in 1978  25 p0138 N80-1360 US energy flow in 1978  26 p0158 N80-1451 Federal Energy Data System (PEDS) statistical summary update
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF]  ULTRAHIGH PREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320]  ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques—components of coal gasification and liquefaction pilot plants [CONF-750480-1]  UDDERGROUND STORAGE	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FB-2025-38] National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCLD-17944-REV-1] Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] US energy flow in 1978  Pederal Energy Data System (FEDS) statistical summary update [DOE/EIA-0192] Western energy sulfate/nitrate monitoring network
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] 25 p0099 N80-10634 ULTRAHIGH PREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] 25 p0096 N80-10600 ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-750480-1] 25 p0167 N80-15259 UNDERGROUND STORAGE Performance of an inexpensive constant flcw solar collector/storage system in ground	United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-1258 Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FE-2025-38] 25 p0130 N80-1262 National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCID-17944-REV-1] 25 p0132 N80-1295 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] 25 p0138 N80-1360 US energy flow in 1978  Pederal Energy Data System (FEDS) statistical summary update [DOE/EIA-0192] 25 p0177 N80-1563 Western energy sulfate/nitrate monitoring network [PB-299238/6] 25 p0180 N80-1568
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF]  ULTRAHIGH PREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320]  ULTRASONIC TESTS  Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONP-750480-1]  UDDERGROUND STORAGE Performance of an inexpensive constant flew solar collector/storage system in ground 25 p0003 A80-10846	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FB-2025-38] National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCID-17944-REV-1] Current U. S. petroleum situation and short-term supply/demand outlook [DOE/FIA-0184/5] US energy flow in 1978  Pederal Energy Data System (FEDS) statistical summary update [DOE/FIA-0192] Western energy sulfate/nitrate monitoring network [FB-299238/6] UNIVERSITIES National environmental/energy workforce
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] 25 p0099 N80-10634 ULTRAHIGH PREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] 25 p0096 N80-10600 ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-750480-1] 25 p0167 N80-15259 UNDERGROUND STORAGE Performance of an inexpensive constant flcw solar collector/storage system in ground	United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-1258 Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FE-2025-38] 25 p0130 N80-1262 National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCID-17944-REV-1] 25 p0132 N80-1295 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] 25 p0138 N80-1360 US energy flow in 1978 25 p0158 N80-1451 Pederal Energy Data System (FEDS) statistical summary update [DOE/EIA-0192] 25 p0177 N80-1563 Western energy sulfate/nitrate monitoring network [FB-299238/6] 25 p0180 N80-1568 UNIVERSITIES National environmental/energy workforce assessment, phase 3. Air programs bibliograph [PB-298580/2] 25 p0117 N80-1167
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] 25 p0099 N80-10634 ULTRABIGH FREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] 25 p0096 N80-10600 ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-750480-1] 25 p0167 N80-15259 UNDERGROUND STORMGE Performance of an inexpensive constant flcw solar collector/storage system in ground Under ground thermal storage in the operation of solar ponds  25 p0077 A80-19471 Underground pumped hydro storage: An overview	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [PE-2025-38] National energy act of 1978: Far western perspective. A study for the US Department of Energy, Pederal Region 9 [UCID-17944-REV-1] Current U. S. petroleum situation and short-term supply/demand outlook [DOE/FIA-0184/5] US energy flow in 1978  25 p0 138 N80-1360 US energy flow in 1978  25 p0 158 N80-1451 Pederal Energy Data System (PEDS) statistical summary update [DOE/FIA-0192] Sestern energy sulfate/nitrate monitoring network [PB-299238/6] UNIVERSITIES National environmental/energy workforce assessment, phase 3. Air programs bibliograph [PB-298580/2] UPPER VOLTA A photovoltaic power system in the remote African
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF]  ULTRAHIGH PREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320]  ULTRASONIC TESTS  Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONP-750480-1]  UDDERGROUND STORAGE  Performance of an inexpensive constant flew solar collector/storage system in ground Under ground thermal storage in the operation of solar ponds  Underground pumped hydro storage: An overview [CONF-781046-1] Trans-seasonal storage of solar energy:	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FB-2025-38] National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCID-17944-REV-1] CUTTENT U. S. petroleum situation and short-term supply/demand outlook [DOE/FIA-0184/5] US energy flow in 1978  25 p0138 N80-1451 Federal Energy Data System (FEDS) statistical summary update [DOE/FIA-0192] Western energy sulfate/nitrate monitoring network [FB-299238/6] UNIVERSITIES National environmental/energy workforce assessment, phase 3. Air programs bibliograph [PB-298580/2] UPPER VOLTA A photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] 25 p0123 N80-1255
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] ULTRAHIGH FREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-750480-1] UNDERGROUND STORMGE Performance of an inexpensive constant flcw solar collector/storage system in ground 25 p0003 A80-10846 Under ground thermal storage in the operation of solar ponds 25 p0077 A80-19471 Underground pumped hydro storage: An overview [CONF-781046-1] Trans-seasonal storage of solar energy: Innovative research program subtask underground storage	United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-1258 Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FE-2025-38] 25 p0130 N80-1262 National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCID-17944-REV-1] 25 p0132 N80-1295 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] 25 p0138 N80-1360 US energy flow in 1978  Pederal Energy Data System (FEDS) statistical summary update [DOE/EIA-0192] 25 p0177 N80-1563 Western energy sulfate/nitrate monitoring network [PB-299238/6] 25 p0180 N80-1568 UNIVERSITIES National environmental/energy workforce assessment, phase 3. Air programs bibliograph [PB-298580/2] 25 p0117 N80-1167 UPPER VOLTA A photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] 25 p0123 N80-1255 URANIUM Energy from the West: Energy resource development
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] ULTRANIGH FREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONP-750480-1] UNDERGROUND STORAGE Performance of an inexpensive constant flcw solar collector/storage system in ground Under ground thermal storage in the operation of solar ponds  25 p0077 A80-19471  Underground pumped hydro storage: An overview [CONF-781046-1] Trans-seasonal storage of solar energy: Innovative research program subtask underground storage [COO-4546-3] Compressed air energy storage technology program	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [PE-2025-38] National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCID-17944-REV-1] Current U. S. petroleum situation and short-term supply/demand outlook [DOE/FIA-0184/5] US energy flow in 1978  25 p0138 N80-1360 US energy flow in 1978  25 p0158 N80-1451 Federal Energy Data System (PEDS) statistical summary update [DOE/FIA-0192] Sustern energy sulfate/nitrate monitoring network [FB-299238/6] UNIVERSITIES National environmental/energy workforce assessment, phase 3. Air programs bibliograph [PB-298580/2] UPPER VOLTA A photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] Energy from the West: Energy resource development systems report. Volume 4: Uranium [PB-299180/0] 25 p0152 N80-1446
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] ULTRAHIGH PREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONP-750480-1] UDDERGROUND STORAGE Performance of an inexpensive constant flew solar collector/storage system in ground Under ground thermal storage in the operation of solar ponds  Underground pumped hydro storage: An overview [CONF-781046-1] Trans-seasonal storage of solar energy: Innovative research program subtask underground storage [COO-4546-3]  25 p0144 N80-13672	United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-1258 Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FE-2025-38] 25 p0130 N80-1262 National energy act of 1978: Par western perspective. A study for the US Department of Energy, Federal Region 9 [UCID-17944-REV-1] 25 p0132 N80-1295 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] 25 p0138 N80-1360 US energy flow in 1978  Pederal Energy Data System (FEDS) statistical summary update [DOE/EIA-0192] 25 p0177 N80-1563 Western energy sulfate/nitrate monitoring network [FB-299238/6] 25 p0180 N80-1568 UNIVERSITIES National environmental/energy workforce assessment, phase 3. Air programs bibliograph [PB-298580/2] 25 p0117 N80-1167 UPPER VOLTA A photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] 25 p0123 N80-1255 URANIUM Energy from the West: Energy resource development systems report. Volume 4: Uranium [PB-299180/0] 25 p0152 N80-1446
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] ULTRANIGH FREQUENCIRS Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONP-750480-1] UNDERGROUND STORAGE Performance of an inexpensive constant flcw solar collector/storage system in ground Under ground thermal storage in the operation of solar ponds  25 p0077 A80-19471  Underground pumped hydro storage: An overview [CONF-781046-1] Trans-seasonal storage of solar energy: Innovative research program subtask underground storage [CO0-4546-3] Compressed air energy storage technology program concept for supplying electric power to meet peak load demands [PNL-2935] 25 p0160 N80-145342	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [PE-2025-38] National energy act of 1978: Par western perspective. A study for the US Department of Energy, Federal Region 9 [UCLD-17944-REV-1] Current U. S. petroleum situation and short-term supply/demand outlook [DOE/FIA-0184/5] US energy flow in 1978  Pederal Energy Data System (FEDS) statistical summary update [DOE/FIA-0184/5] Western energy sulfate/nitrate monitoring network [FB-299238/6] UNIVERSITIES National environmental/energy workforce assessment, phase 3. Air programs bibliograph [PB-298580/2] UPPER VOLTA A photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] Energy from the West: Energy resource development systems report. Volume 4: Uranium [PB-299180/0] URANIUM ISOTORES The jet membrane process for uranium separation and enrichment
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] ULTRAHIGH PREQUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-750480-1] UDDERGROUND STORAGE Performance of an inexpensive constant flew solar collector/storage system in ground Under ground thermal storage in the operation of solar ponds Underground pumped hydro storage: An overview [CONF-781046-1] Trans-seasonal storage of solar energy: Innovative research program subtask underground storage [COO-4546-3] Compressed air energy storage technology program concept for supplying electric power to meet peak load demands [PNI-2935] Turbomachinery options for an underground pumped hydroelectric storage plant	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [FB-2025-38] National energy act of 1978: Far western perspective. A study for the US Department of Energy, Federal Region 9 [UCID-17944-REV-1] CUTTENT U. S. petroleum situation and short-term supply/demand outlook [DOE/FIA-0184/5] US energy flow in 1978  Pederal Energy Data System (FEDS) statistical summary update [DOE/FIA-0192] Western energy sulfate/nitrate monitoring network [FB-299238/6] UNIVERSITIES National environmental/energy workforce assessment, phase 3. Air programs bibliograph [PB-298580/2] UPPER VOLTA A photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] UPPER YOLTA A photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] UPPER YOLTA The photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] UPPER YOLTA The photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] UPPER YOLTA The photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] UPPER YOLTA The photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] UPPER YOLTA The photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] UPPER YOLTA The photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] UPPER YOLTA The photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] UPPER YOLTA The photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] UPPER YOLTA The photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] UPPER YOLTA The photovoltaic power system in the remote
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] ULTRANIGH FRIGUENCIES Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONP-750480-1] UNDERGROUND STORAGE  Performance of an inexpensive constant flcw solar collector/storage system in ground Under ground thermal storage in the operation of solar ponds  Underground pumped hydro storage: An overview [CONP-781046-1] Trans-seasonal storage of solar energy: Innovative research program subtask underground storage [COO-4546-3] Compressed air energy storage technology program concept for supplying electric power to meet peak load demands [PNL-2935] Turbomachinery options for an underground pumped hydroelectric storage plant [CONP-70803-50] UNDERGROUND TRANSHISSION LINES	United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-1258 Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [PE-2025-38] 25 p0130 N80-1262 National energy act of 1978: Far western perspective. A study for the US Department of Energy, Pederal Region 9 [UCLD-17944-REV-1] 25 p0132 N80-1295 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] 25 p0138 N80-1360 US energy flow in 1978  25 p0158 N80-1451 Pederal Energy Data System (PEDS) statistical summary update [DOE/EIA-0192] 25 p0177 N80-1563 Western energy sulfate/nitrate monitoring network [PB-299238/6] 25 p0180 N80-1568 UNIVERSITIES National environmental/energy workforce assessment, phase 3. Air programs bibliograph [PB-298580/2] 25 p0117 N80-1167 UPPER VOLTA A photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] 25 p0123 N80-1255 URANIUM Energy from the West: Energy resource development systems report. Volume 4: Uranium [PB-299180/0] 25 p0152 N80-1446 URANIUM ISOTOPES The jet membrane process for uranium separation and enrichment [RE-586] 25 p0091 N80-1032 URANIUM OXIDES Improved planar solar convertor based on uranyl neodymium and holmium glasses
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-A073128]  U  U.S.S.R. Soviet energy balances [RAND/R-2257-DOF] ULTRANIGH FREQUENCIRS Analysis of S-band solid-state transmitters for the solar power satellite [NASA-CR-160320] ULTRASONIC TESTS Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONP-750480-1] UNDERGROUND STORAGE Performance of an inexpensive constant flcw solar collector/storage system in ground Under ground thermal storage in the operation of solar ponds  25 p0077 A80-19471  Underground pumped hydro storage: An overview [CONF-781046-1] Trans-seasonal storage of solar energy: Innovative research program subtask underground storage [COO-4546-3] Compressed air energy storage technology program concept for supplying electric power to meet peak load demands [PNL-2935] Turbomachinery options for an underground pumped hydroelectric storage plant [CONF-790803-50] 25 p0177 N80-15629	United States magnetic fusion energy program [DOE/ET-0072] Naturally occuring carbon dioxide sources in the United States. A geologic appraisal and economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [PE-2025-38] National energy act of 1978: Par western perspective. A study for the US Department of Energy, Federal Region 9 [UCLD-17944-REV-1] Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] US energy flow in 1978  25 p0138 N80-1360 US energy flow in 1978  25 p0158 N80-1451 Pederal Energy Data System (PEDS) statistical summary update [DOE/EIA-0192] Swestern energy sulfate/nitrate monitoring network [PB-299238/6] UNIVERSITIES National environmental/energy workforce assessment, phase 3. Air programs bibliograph [PB-298580/2] UPPER VOLTA A photovoltaic power system in the remote African village of Tangaye, Upper Volta [NASA-TM-79318] Energy from the West: Energy resource development systems report. Volume 4: Uranium [PB-299180/0] URANIUM ISOTORES The jet membrane process for uranium separation and enrichment [RE-586] URANIUM OXIDES Improved planar solar convertor based on uranyl

RANIUN 233	
Economics of fusion driven symbiotic energy systems	V
[CONF-790602-50] 25 p0128 N80-12602	WARREN GELEDEDE
RBAN DEVELOPMENT  Back to the central city - Myths and realities	VACUUM CHAMBERS The design of a thin walled toroidal vacuum
25 p0002 A80-10323	chamber for a large RFP experiment Reversed
Colloguium on the Microclimatic Environment and	Field Pinch
Habitat, Reims, France, May 21-23, 1979, Proceedings	VACUUM DEPOSITION 25 p0082 A80-19676
25 p0041 A80-15968	Bogus-type treatment of Cu2S-CdS solar cells using
Dimensions/NBS, volume 63, no. 6, June 1979	deposition from solution
[PB-297836/9] 25 p0105 N80-10975	25 p0028 A80-12788
Report on Finnish technological activities 25 p0119 N80-11991	VACUUM EFFECTS Solar concentrators using vacuum-contoured
RBAN PLANNING	surfaces for tracking
Hydrogen fuel applications for urban transit	[AIAA PAPER 80-0399] 25 p0077 A80-19326
25 p0037 A80-14703 An optimization model for overall urban energy	VAPOR DEPOSITION Stabilized CVD amorphous silicon for high
planning	temperature photothermal solar energy conversion
25 p0038 A80-14844	25 p0087 A80-20722
Energy planning with solar and conservations: Individual values and community choice	VAPOR PHASES Simulation of LNC waver garded and dispersion by
[LA-UR-79-1599] 25 p0142 N80-13653	Simulation of LNG vapor spread and dispersion by finite element methods
RBAN RESEARCH	[UCRL-82441] 25 p0168 N80-15282
Baltimore applications project [NASA-TM-80577] 25 p0133 N80-12957	VAPOR PRESSURE
Barriers to the application of wind energy	Salinity gradient power - Otilizing vapor pressure differences
conversion systems in urban settings	25 p0003 A80-10524
Definition and applying of the harrians to the	Analysis of reservoir pressure and decline curves
Definition and analysis of the barriers to the implementation of urban energy recovery systems	in Serrazzano zone, Larderello geothermal field ^ 25 p0075 180-19204
[ANL/CHSV/TM-2] 25 p0 159 N80-14525	Physical properties of gasoline/alcohol automotive
RBAH TRANSPORTATION	fuels
The electric trolley bus - Revisited 25 p0002 A80-10321	[CCNF-790520-4] 25 p0134 N80-13273 VAPORS
Porecasting automobile fleet fuel efficiency	Remote sensing of LNG spill vapor dispersion using
25 p0002 A80-10324	Raman LIDAR
Linear synchronous motor development for urban and rapid transit systems	[UCRL-13984] 25 p0103 N80-10689 VELOCITY DISTRIBUTION
25 p0062 A80-18167	Effect of velocity overshoot on the performance of
The status of advanced propulsion systems for	magnetohydrodynamic subsonic diffusers
urban rail vehicles [PB-297980/5] 25 p0133 N80-12962	[NASA-TM-79305] 25 p0166 N80-14922 VERTICAL TAKEOFF AIRCRAFT
Applications of fuel cells in transportation	Fuel minimal take-off path of jet lift VTGL
[LA-UR-79-628] 25 p0 159 N80-14526	aircraft, log no. C3558
SER MANUALS (COMPUTER PROGRAMS) User's manual for the magnetohydrodynamic	VISCOUS PLOW 25 p0105 N80-11066
generator channel code, MHDCHN	Tearing modes in a plasma with magnetic braiding
[SAND-78-1260] 25 p0132 N80-12894	25 p0006 A80-11349
SER REQUIREMENTS Geothermal energy markets on the Atlantic coastal	VLASOV EQUATIONS  New approach for Vlasov equilibrium of a
plain	relativistic electron beam in a plasma medium
25 p0016 A80-11978 Proposed research planning format for the	VOLCABOES 25 p0 085 A80-20538
Environmental Assessment Department needs	Geothermal energy development from the Salton
and concerns of groups concerned with	Trough to the High Cascades Cerro Preto,
environment and energy issues [EPRI-EA-1018] 25 p0103 N80-10692	Lower California and Mt. Hood, Oregon [LBL-8703] 25 p0171 N80-15568
Proceedings: Solar Thermal Power User Review	VOLT-AMPREE CHARACTERISTICS
Panel Meeting	The semiconductor-insulator-semiconductor /indium
[SEBI/TP-69-221] 25 p0113 N80-11598 TILITIES	tin oxide on silicon/ solar cell - Characteristics and loss mechanisms
The marginal cost of electricity used as tackup	25 p0006 A80-11368
for solar hot water systems - A case study	Failure mechanisms of vented nickel-cadmium cells
25 p0021 A80-12436 The financing problems of Furope's gas industry	in overcharge 25 p0010 180-11840
25 p0032 A80-13174	A theoretical method for estimation of power loss
A solar thermal electric power plant for small	due to mismatch in solar cell I-V characteristics
communities [ASME PAPER 79-WA/SOL-7] 25 p0069 A80-18584	25 p0025 A80-12763 Effect of thin oxide layer on the current voltage
Modeling and simulation of WECS assisted utility	relations of Schottky barrier solar cells
systems Wind-Flectric Conversion System	25 p0026 #80-12772
25 p0088 A80-20887 Regional reference energy systems: Electric	Effect of image force on the characteristics of MOS solar cell
utility applications	25 p0028 A80-12785
[BNL-50962] 25 p0111 N80-11585	Effect of microwave radiation on the
Demand management demonstration project. Stage 1: Development of residential load characteristics.	<pre>voltage-current characteristics of a variable-thickness Josephson microbridge</pre>
Stage 4: Demonstration of residential	25 p0035 A80-14430
incremental cost pricing implemented by	Some problems with variable operation of an MHD
time-of-day metering [HCP/B8072-01] 25 p0118 N80-11941	generator 25 p0035 A80-14530
Requirements assessment of wind power plants in	Plastic bonded electrodes for nickel-cadmium
electric utility systems. Volume 3: Appendixes [EPBI-ER-978-VOL-3] 25 p0139 N80-13628	accumulators. I - Cadmium electrode
Electric utility solar energy activities, 1978	25 r0043 A80-16147 Photoconverter with bilateral sensitivity
[EPBI-ER-966-SR] 25 p0 162 N80-14560	. 25 p0044 A80-16625
	AlGaAs tunnel diode 25 p0046 A80-16799
	25 p0040 H00-10733

Relating computer simulation studies with	Utilization of waste heat from Federal facilities
interface state measurements on MIS solar cells	[CRO-5523-T1] 25 p0173 N80-15590
VOLTAGE CONVERTERS (DC TO DC)  25 p0062 A80-18231	Aquifer thermal energy storage [LBL-7070] 25 p0176 N80-15618
Unconventional circuits for static voltage	Characterization of operating conditions for
transformers [BMFT-FE-T-78-26] 25 p0107 N80-11368	gas/water heat recovery steam generators [CENL/TM-6622] 25 p0176 N80-15620
VOLTAGE REGULATORS	Analysis of potential implementation levels for
Controllable d.c. power supply from wind-driven self-excited induction machines	waste heat utilization in the nuclear power industry
25 p0075 A80-19031	[ORNL/TH-63-2] 25 p0177 N80-15625
VORTICES A vortex model of the Darrieus turbine - An	WASTE TREATMENT
analytical and experimental study	Wastewater treatment in coal conversion [PB-297587/8] 25 p0104 N80-10700
[ASME PAPER 79-WA/FE-6] 25 p0070 A80-18620	US program for the immobilization of high-level
\A/	nuclear wastes [DP-MS-79-2] 25 p0149 N80-13917
WAPERS	WASTE UTILIZATION
Behavior of SORB-AC wafer pumps in contaminated H2	Experimental techniques and mathematical models in the study of waste pyrolysis and gasification
plasmas and during maintenance of plasma machines	25 p0001 A80-10028
25 p0082 A80-19672 Silicon solar cell process development,	Resource recovery systems costs 25 p0001 A80-10029
fabrication and analysis, phase 1	Energy conservation through recycling
[NASA-CR-162427] 25 p0109 N80-11561 WALL JETS	25 p0003 A80-10842 Combustion of anthracite culm in a fluidized bed
Influence of wall-jet gas injection on	boiler
liquid-metal MHD generator performance 25 p0047 A80-16996	25 p0014 A80-11959
WALL TEMPERATURE	Pelletized wood /Woodex/ - Applications and potential from biomass waste products
Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation	25 p0017 A80-11981
[ASME PAPER 79-WA/HT-67] 25 p0070 A80-18600	Source, supply and nature of municipal and industrial waste as a fuel
WALLS Thermal performance of buildings and building	25 p0017 A80-11983
envelope systems: An annotated bibliography	Environmental protection in the processing of coal - The utilization or disposal of coal processing
[LBL-8925] 25 p0145 N80-13680 WASTE DISPOSAL	residues
The uncertain costs of waste disposal and resource	Hydrogen - The Denver story 25 p0030 A80-12942
recovery	25 p0038 A80-14709
25 p0043 A80-16150 Simulation of solar-assisted urban sewage digestion	The relative value of energy derived from municipal refuse
[ASME PAPER 79-WA/SOL-36] 25 p0065 A80-18556	25 p0051 A80-17352
Quality assurance in alternative energy sources [RHO-SA-107] 25 p0095 N80-10504	Energetics aspects of environmental protection
World Energy Data System (WENDS). Volume 11:	25 p0072 A80-18733 Gasification of solid waste in a fluidized bed
Nuclear fission program summaries [ANL-PMS-79-2-VOL-11] 25 p0124 N80-12562	reactor with circulating sand
Management of coal preparation fine wastes without	25 p0074 A80-18868 The microbial production of methane from household
disposal ponds [PB-299100/8] 25 p0180 N80-15691	wastes - Fixed-bed anaerobic digestion
WASTE ENERGY UTILIZATION	25 p0074 A80-18870 The basics of magnetic separation as applied to
Techniques for evaluation of advanced cogeneration technologies	municipal solid waste reclamation plants
25 p0014 A80-11957	25 p0074 A80-18871 Waste utilization as an energy source. Citations
Measurement of gaseous hydrogen chloride emissions from municipal refuse energy recovery systems in	from the International Aerospace Abstracts Data Base
the United States	[NTIS/PS-79/0765/2] 25 p0102 N80-10667
25 p0019 A80-12128 Novel gas turbine cycles with coal gasification	Gasification of residual materials from coal
[ASME PAPER 79-WA/ENER-6] 25 p0071 A80-18646	liquefaction . [FE-2247-22] 25 p0135 N30-13289
Deep space network feasibility study of terminating Southern California Edison	Characterization of solid-waste conversion and
electrical service to Goldstone ccst	[LBL-7883] 25 p0141 N80-13648
analysis of electric power supplies and waste energy utilization	Pilot plant gasification test on biomass fuels
25 p0091 N80-10263	[PB-299077/8] 25 p0151 M80-14272 Commercialization strategy report for energy from
Waste Heat Utilization: Proceedings of 1978 Engineering Foundation Conference	urban wastes .
[CONF-7808102] 25 p0102 N80-10665	[TID-28852-DRAFT] 25 p0158 N80-14521 Overview of the Department of Energy's research,
High COP heat pump system, phase 1, results [HCP/M5C56-01] 25 p0110 N80-11573	development and demonstration program for the
[HCP/M5C56-01] 25 p0110 M80-11573 Heat pump centered integrated community energy	recovery of energy and materials from urban waste [CONF-790373-1] 25 p0163 N80-14562
systems; System development	Conversion of cellulosic and waste polymer
[ANL-ICES-TM-28] 25 p0111 N80-11574 Waste heat rejection from geothermal power stations	material to gasoline [COO-2982-38] 25 p0169 N80-15291
[ORNL/TM-6533] 25 p0125 N80-12575	Energy optimal use of waste paper
Land-based application of an OTEC open-cycle power system	[COO-2893-9] 25 p0174 N80-15595 WASTE WATER
[CONF-790631-3] 25 p0144 N80-13676	Wastewater treatment in coal conversion
Conceptual designs for two reject heat systems for a Brayton closed-cycle converter	[PB-297587/8] 25 p0104 N80-10700 An evaluation of the NASA Tech House, including
[LA-7821-MS] 25 p0144 M80-13677	live-in test results, volume 1
Cogeneration opportunities conferences [CONF-7806118] 25 p0145 N80-13681	[NASA-TP-1564] 25 p0109 N80-11559 Energy conservation through point source recycle
Definition and analysis of the barriers to the	with high temperature hyperfiltration
<pre>implementation of urban energy recovery systems [ANL/CNSV/TM-2]</pre>	textile industry [PB-299183/4] 25 p0180 N80-15688
• • • • • • • • • • • • • • • • • • • •	2 13000 PO 1000 1000 1000

SUBJECT INDEX WEIGHT REDUCTION

WATER Water splitting reaction on a polynaphthoguinone	Commercializing solar heating: A national
	strategy needed
catalyst - A polynaphthoguinone-So2-I2 system	[PB-297882/3] 25 p0164 N80-14575
for H2O decomposition	WATER POLLUTION
25 p0032 A80-13196	Mineral changes during oil shale retorting
Seminar on Hydrogen as an Energy Vector: Its	25 p0085 A80-20455
Production, Use and Transportation, 1st,	Environmental assessment report: Lurgi coal gasification systems for SNG
Brussels, Belgium, October 3, 4, 1978, Proceedings 25 p0041 A80-15976	[PB-298109/0] 25 p0120 N80-12204
Thermodynamics of water-splitting for hydrogen	Environmental assessment of the fluidized-bed
production	combustion of coal: Methodology and initial
25 p0052 A80-17575	results
Water electrolysis for hydrogen production	[PB-298473/0] 25 p0165 N80-14595
25 p0052 A80-17576	Environmental assessment report: Solvent Refined
Direct thermal decomposition of water	Coal (SBC) systems
25 p0052 A80-17577	[PB-300383/7] 25 p0179 N80-15676
Thermochemical hydrogen production	WATER QUALITY
25 p0052 A80-17578	Energy development vs water quality in the upper
Photochemical hydrogen production	Colorado and upper Missouri River Basins
. 25 p0052 A80-17579	[LA-7497-MS] 25 p0117 N80-11641
Hydrogen and oxygen from water. II - Some	Surface water quality parameters for monitoring
considerations in the reduction of the idea to	oil shale development
practice	[FB-297984/7] 25 p0153 N80-14470
25 p0078 A80-19473	WATER RESOURCES
Underground pumped hydro storage: An overview [CONF-781046-1] 25 p0116 N80-11624	Water use alternatives for Navajo energy production [LA-UR-79-1598] 25 p0178 N80-15643
[CONF-781046-1] 25 p0116 N80-11624 WATER HEATING	WATER TEMPERATURE
Economy of a retrofit solar system water heating	Construction and initial operation of the
25 p0017 A80-11984	Miamisburg salt-gradient solar pond
The marginal cost of electricity used as backup	[MLM-2626-OP] 25 p0161 N80-14541
for solar hot water systems - A case study	WATER TREATMENT
25 p0 C21 A80-12436	A cheap method of improving the performance of
Testing of three installed solar domestic water	roof type solar stills
heaters	25 p0006 A80-11343
25 p0025 A80-12758	WATER WAVES
An experimental study of corrugated steel sheet	Wave power systems
solar water heater	[PB-299851/6] 25 p0164 N80-14576
25 p0029 A80-12822	WATERWAYE EMERGY
Plat-plate solar collector materials	Development of renewable energy sources in the
25 p0035 A80-14409	United Kingdom 25 m0017 200-11990
A study of the thermal effect that radiant energy produces on a mass of water Spanish thesis	25 p0017 A80-11980 Ocean energy - Forms and prospects
25 p0040 A80-15653	25 p0061 A80-18162
	WATERWAVE BHERGY CONVERSION
A solar-heated water system for a photographic	On the basic dynamics of extracting power from waves
processing laboratory	On the basic dynamics of extracting power from waves 25 p0038 A80-14837
processing laboratory 25 p0041 A80-15750	25 p0038 A80-14837
processing laboratory 25 p0041 A80-15750 Results of interdepartmental tests of solar water	25 p0038 180-14837 Power from ocean waves
processing laboratory 25 p0041 A80-15750	25 p0038 A80-14837
processing laboratory 25 p0041 A80-15750 Results of interdepartmental tests of solar water heaters over an annual cycle. I	25 p0038 &80-14837 Power from ocean waves 25 p0045 &80-16655
processing laboratory 25 p0041 A80-15750 Results of interdepartmental tests of solar water heaters over an annual cycle. I 25 p0051 A80-17245	25 p0038 &80-14837 Power from ocean waves 25 p0045 &80-16655 Waves, currents, tides - Froblems and prospects
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using	25 p0038 &80-14837 Power from ocean waves 25 p0045 &80-16655 Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134 Wave power systems [PB-299851/6] 25 p0164 &80-14576
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system	25 p0038 &80-14837 Power from ocean waves 25 p0045 &80-16655 Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134 Wave power systems [PB-299851/6] 25 p0164 &80-14576 WATERWAVE POWERED MACHINES
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house	25 p0038 &80-14837 Power from ocean waves 25 p0045 &80-16655 Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134 Wave power systems [PB-299851/6] WATERWAYE POWERED MACHINES On the basic dynamics of extracting power from waves
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house [AIAA PAPER 80-0297]  25 p0063 A80-18301	25 p0038 &80-14837 Power from ocean waves 25 p0045 &80-16655 waves, currents, tides - Froblems and prospects 25 p0049 &80-17134 wave power systems [PB-299851/6] 25 p0164 &80-14576 WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in	25 p0038 &80-14837 Power from ocean waves  25 p0045 &80-16655 Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134 Wave power systems [PB-299851/6] 25 p0164 &80-14576 WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837 WAVE EXCITATION
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU field House	25 p0038 & 880-14837
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  25 p0068 A80-18576	25 p0038 &80-14837 Power from ocean waves  25 p0045 &80-16655 Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134 Wave power systems [PB-299851/6] 25 p0164 &80-14576 WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837 WAVE EXCITATION Past-magnetosonic-wave excitation in large-tokamak plasmas
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water	25 p0038 &80-14837 Power from ocean waves  25 p0045 &80-16655 Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134 Wave power systems [PB-299851/6] 25 p0164 &80-14576 WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837 WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas 25 p0056 &80-17855
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems	25 p0038 & 880-14837
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  25 p0068 A80-18578	25 p0038 &80-14837 Power from ocean waves  25 p0045 &80-16655 waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6] 25 p0164 &80-14576 WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Past-magnetosonic-wave excitation in large-tokamak plasmas 25 p0056 &80-17855  WAVE GEMERATION Non-linear theory of collective processes in
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate	25 p0038 &80-14837 Power from ocean waves  25 p0045 &80-16655 Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134 Wave power systems [PB-299851/6] 25 p0164 &80-14576 WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837 WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas 25 p0056 &80-17855 WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and	25 p0038 &80-14837 Power from ocean waves  25 p0045 &80-16655 waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6] 25 p0164 &80-14576 WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Past-magnetosonic-wave excitation in large-tokamak plasmas 25 p0056 &80-17855  WAVE GEMERATION Non-linear theory of collective processes in
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate	Power from ocean waves  ### 15 p0038 & 80-14837  ### 25 p0045 & 80-16655  ### 25 p0045 & 80-16655  ### 25 p0049 & 80-17134  ### 25 p0049 & 80-17134  ### 25 p0049 & 80-17134  ### 25 p0049 & 80-14576  #### ##############################
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6]  WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting calle. Part 1: Analysis
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures  [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation: A-Frame Industries, single family dwelling,	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6] 25 p0164 &80-14576  WATERWAYE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION  Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting catle. Part 1: Analysis [LA-UR-79-226] 25 p0151 &80-14346
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures  [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation:  A-Frame Industries, single family dwelling, Kaneohe, Hawaii	25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6]  WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION  Past-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting calle. Part 1: Analysis [LA-UR-79-226]  EAR
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  Asme PAPER 79-WA/SOL-31]  Solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures  [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation: A-Frame Industries, single family dwelling, Kaneobe, Hawaii  [SOLAR/1010-78/14]  25 p0101 N80-10659	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6]  WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting calle. Part 1: Analysis [LA-UR-79-226]  WEAR Long-term erosion monitoring of metallic conduits
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  ASME PAPER 79-WA/SOL-31]  Solar energy system for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures  [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation:  A-Frame Industries, single family dwelling, Kaneobe, Hawaii  [SOLAR/1010-78/14]  Solar heating and cooling systems design and	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6]  WATERWAYE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Past-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and scliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting catle. Part 1: Analysis [LA-UR-79-226]  UEAN Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques
Processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSF and ASHRAE procedures  [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation:  A-Frame Industries, single family dwelling, Raneohe, Hawaii  [SOLAR/1010-78/14]  Solar heating and cooling systems design and development	25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6]  WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION  Past-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting calle. Part 1: Analysis [LA-UR-79-226]  WEAR  Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation: A-Frame Industries, single family dwelling, Kaneobe, Hawaii [SOLAR/1010-78/14]  Solar heating and cooling systems design and development [NASA-CE-150873]  25 p0109 R80-11560	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6]  WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting calle. Part 1: Analysis [LA-UR-79-226]  WEAR Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants
processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  ASME PAPER 79-WA/SOL-31]  Solar energy system for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures  [ASME PAPER 79-WA/SOL-42]  Solar energy system performance evaluation:  A-Frame Industries, single family dwelling, Kaneobe, Hawaii  [SOLAR/1010-78/14]  Solar heating and cooling systems design and development  [NASA-CE-150873]  25 p0109 R80-11560  Investigation of the applicability of technical	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems  [PB-299851/6]  WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION  Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION  Non-linear theory of collective processes in laser-pellet interaction and soliton generation  WAVE PROPAGATION  Wave propagation in a dc superconducting catle.  Part 1: Analysis [LA-UR-79-226]  WEAR  Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [COMF-790480-1]  25 p0167 &80-15259
Processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures  [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation:  A-Frame Industries, single family dwelling, Kaneohe, Hawaii  [SOLAR/1010-78/14]  Solar heating and cooling systems design and development  [NASA-CE-150873]  Investigation of the applicability of technical systems utilizing solar energy for the heat	25 p0038 & 880-14837 Power from ocean waves  25 p0045 & 880-16655 Waves, currents, tides - Froblems and prospects 25 p0049 & 880-17134 Wave power systems [PB-299851/6] WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 & 880-14837 WAVE EXCITATION Past-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 & 880-17855 WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 & 880-17870 WAVE PROPAGATION Wave propagation in a dc superconducting calle. Part 1: Analysis [LA-UR-79-226] WEAR Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-790480-1] WEATHER HODIFICATION
Processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  Experimental results of the solar heating system on the LSU field house [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House [ASME PAPER 79-WA/SOL-31]  Asme PAPER 79-WA/SOL-31]  Solar heating system installed in the LSU Field House [ASME PAPER 79-WA/SOL-31]  Comparison of test results for flat-plate water-heating solar collectors using the FSF and ASHRAE procedures [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation:  A-Frame Industries, single family dwelling, Kaneohe, Hawaii [SOLAR/1010-78/14]  Solar heating and cooling systems design and development [NASA-CE-150873]  Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6]  WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting calle. Part 1: Analysis [LA-UR-79-226]  WEAR Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [COWF-790480-1]  WEATHER HODIFICATION Reteorological effects of oil refinery operations
Processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House [ASME PAPER 79-WA/SOL-31]  ASME PAPER 79-WA/SOL-31]  Solar paper 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation: A-Frame Industries, single family dwelling, Kaneobe, Hawaii [SOLAR/1010-78/14]  Solar heating and cooling systems design and development [MASA-CE-150873]  Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings [BMFT-PE-T-78-48]  25 p0101 N80-11630	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6] WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation  WAVE PROPAGATION Wave propagation in a dc superconducting calle. Part 1: Analysis [LA-UR-79-226]  WEAR  Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-790480-1]  WEATHER HODIFTICATION Neteorological effects of oil refinery operations in Los Angeles
Processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [ATAM PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures  [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation:  A-Frame Industries, single family dwelling, Kaneohe, Hawaii  [SOLAR/1010-78/14]  Solar heating and cooling systems design and development  [NASA-CE-150873]  Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings  [BMFT-FF-T-78-48]  Double-exposure collector system	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6]  WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting calle. Part 1: Analysis [LA-UR-79-226]  WEAR Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [COWF-790480-1]  WEATHER HODIFICATION Reteorological effects of oil refinery operations
Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  Experimental results of the solar heating system on the LSU field house [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House [ASME PAPER 79-WA/SOL-31]  Asme PAPER 79-WA/SOL-31]  Solar heating system installed in the LSU Field House [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation: A-Frame Industries, single family dwelling, Kaneohe, Hawaii [SOLAR/1010-78/14]  Solar heating and cooling systems design and development [NASA-CE-150873] Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings [BMFT-PE-T-78-48]  Double-exposure collector system [TID-28964]  25 p0127 N80-12593	Power from ocean waves  ### 15 p0038 ### 14837  ### 1655  #### 1655  #### 1655  #### 1655  #### 1655  #### 1655  #### 1655  #### 1655  #### 1655  #### 1655  #### 1655  #### 1655  ##### 1655  ##### 1655  ##### 1655  ##################################
Processing laboratory  25 p0041 A80-15750  Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [ATAM PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures  [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation:  A-Frame Industries, single family dwelling, Kaneohe, Hawaii  [SOLAR/1010-78/14]  Solar heating and cooling systems design and development  [NASA-CE-150873]  Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings  [BMFT-FF-T-78-48]  Double-exposure collector system	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems  [PB-299851/6]  25 p0164 &80-14576  WATERWAVE POWERED MACHINES  On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION  Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION  Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION  Wave propagation in a dc superconducting calle.  Part 1: Analysis  [LA-UR-79-226]  WEAR  Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-790480-1]  ECONF-790480-1]  ECONF-790480-15758
Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  Experimental results of the solar heating system on the LSU field house [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House [ASME PAPER 79-WA/SOL-31]  Asme PAPER 79-WA/SOL-31]  Solar heating solar collectors using the FSE and ASHRAE procedures [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation: A-Frame Industries, single family dwelling, Kaneobe, Hawaii [SOLAR/1010-78/14]  Solar heating and cooling systems design and development [NASA-CE-150873]  Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings [BMFT-PE-T-78-48]  Double-exposure collector system [TID-28964]  Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1]  25 p0130 N80-12613	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6] WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting calle. Part 1: Analysis [LA-UR-79-226]  WEAR Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-790480-1]  WEATHER HODIFICATION Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0]  WEATHER STATIONS Assessment of the applicability of the national fire weather data library to wind energy analyses [FNI-2538]  25 p0165 880-14655
Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures  [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation:  A-Frame Industries, single family dwelling, Kaneohe, Hawaii  [SOLAR/1010-78/14]  Solar heating and cooling systems design and development  [NASA-CE-150873]  Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings  [BMFT-PE-T-78-48]  Double-exposure collector system  [TID-28964]  Research and development of a heat and pump water heater, volume 1	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6] WATERWAYE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas 25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting catle. Part 1: Analysis [LA-UR-79-226]  ELA-UR-79-226]  WATER Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-790480-1]  WEATHER HODIFICATION Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0]  WEATHER STATIONS ASSESSMENT of the applicability of the national fire weather data library to wind energy analyses [FNI-2538] WEIBULL DENSITY FURCTIONS
Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation: A-Frame Industries, single family dwelling, Kaneobe, Hawaii [SOLAR/1010-78/14]  Solar heating and cooling systems design and development [NASA-CE-150873]  Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings [BMFT-FE-T-78-48]  Double-exposure collector system [TID-28964]  Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1]  BUILT-USB-7321-1]  BUILT-USB-7321-1]  Constant of the solar testing and testing and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1]  BUILT-USB-7321-1]  BUILT-USB-7321-1	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6] WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Past-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting catle. Part 1: Analysis [LA-UR-79-226]  WEAR Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-790480-1]  WEATHER MODIFICATION Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0]  WEATHER STATIONS Assessment of the applicability of the national fire weather data library to wind energy analyses [PNL-2538]  WEIBULL DENSITY FUNCTIONS The estimation of the parameters of the Weitull
Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  Experimental results of the solar heating system on the LSU field house [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House [ASHE PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems [ASHE PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSF and ASHRAE procedures [ASHE PAPER 79-WA/SOL-4]  Solar energy system performance evaluation: A-Frame Industries, single family dwelling, Kaneohe, Hawaii [SOLAR/1010-78/14]  Solar heating and cooling systems design and development [NASA-CE-150873]  Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings [BMFT-FE-T-78-48]  Double-exposure collector system [TID-28964]  Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1]  Multi-use geothermal energy system with augmentation for enhanced utilization. Non-electric application of geothermal energy in	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6] WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting calle. Part 1: Analysis [LA-UR-79-226]  WEAR Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-790480-1]  WEATHER HODIFICATION Reteorological effects of oil refinery operations in Los Angeles [PB-300720/0]  WEATHER STATIONS Assessment of the applicability of the national fire weather data library to wind energy analyses [FNI-2538]  WEIBULL DRNSITY FUNCTIONS The estimation of the parameters of the Weitull wind speed distribution for wind energy
Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSF and ASHAF procedures  [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation.  A-Frame Industries, single family dwelling, Kaneohe, Hawaii  [SOLAB/1010-78/14]  Solar heating and cooling systems design and development  [NASA-CE-150873]  Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings  [BMFT-FF-78-48]  Double-exposure collector system  [TID-28964]  Research and development of a heat and pump water heater, volume 1  [ORNL/SUB-7321-1]  Sulariuse geothermal energy system with augmentation for enhanced utilization.  Non-electric application of geothermal energy in Susanville, California	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6] WATERWAYE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting catle. Part 1: Analysis [LA-UR-79-226]  WEAR Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-790480-1]  WEATHER MODIFICATION Neteorological effects of oil refinery operations in Los Angeles [PB-300720/0]  WEATHER STATIONS Assessment of the applicability of the national fire weather data library to wind energy analyses [PNI-2538]  WEIBULL DENSITY FUNCTIONS The estimation of the parameters of the Weitull wind speed distribution for wind energy utilization purposes
Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House [ASE PAPER 79-WA/SOL-31]  Experimental results of the solar heating system on the LSU Field House [ASE PAPER 79-WA/SOL-31]  Evaluation of a solar heating system installed in the LSU Field House [ASE PAPER 79-WA/SOL-31]  Experimental results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures [ASME PAPER 79-WA/SOL-42]  Experimental results for flat-plate water-heating solar collectors using the FSE and ASHRAE procedures [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation: A-Frame Industries, single family dwelling, Raneohe, Hawaii [SOLAR/1010-78/14]  Solar heating and cooling systems design and development [NASA-CE-150873]  Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings [BMFT-FE-T-78-48]  Double-exposure collector system [TID-28964]  Research and development of a heat and pump water heater, volume 1 [ORNL/SUB-7321-1]  Evaluation of geothermal energy in Susanville, California [DOE/ET-246447/1]  Evaluation for enhanced utilization. Non-electric application of geothermal energy in Susanville, California [DOE/ET-246447/1]  Evaluation for enhanced utilization.	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6] WATERWAVE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Past-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting catle. Part 1: Analysis [LA-UR-79-226]  WEAR Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-790480-1]  WEATHER MODIFICATION Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0]  WEATHER STATIONS Assessment of the applicability of the national fire weather data library to wind energy analyses [PNL-2538]  WEIBULL DENSITY FUNCTIONS The estimation of the parameters of the Weitull wind speed distribution for wind energy utilization purposes
Results of interdepartmental tests of solar water heaters over an annual cycle. I  25 p0051 A80-17245  Solar heating system performance estimation using sinusoidal inputs  25 p0061 A80-18130  Experimental results of the solar heating system on the LSU field house  [AIAA PAPER 80-0297]  Evaluation of a solar heating system installed in the LSU Field House  [ASME PAPER 79-WA/SOL-31]  An optimization formulation for solar hot water systems  [ASME PAPER 79-WA/SOL-42]  A comparison of test results for flat-plate water-heating solar collectors using the FSF and ASHAF procedures  [ASME PAPER 79-WA/SOL-4]  Solar energy system performance evaluation.  A-Frame Industries, single family dwelling, Kaneohe, Hawaii  [SOLAB/1010-78/14]  Solar heating and cooling systems design and development  [NASA-CE-150873]  Investigation of the applicability of technical systems utilizing solar energy for the heat supply of buildings  [BMFT-FF-78-48]  Double-exposure collector system  [TID-28964]  Research and development of a heat and pump water heater, volume 1  [ORNL/SUB-7321-1]  Sulariuse geothermal energy system with augmentation for enhanced utilization.  Non-electric application of geothermal energy in Susanville, California	Power from ocean waves  25 p0038 &80-14837  Power from ocean waves  25 p0045 &80-16655  Waves, currents, tides - Froblems and prospects 25 p0049 &80-17134  Wave power systems [PB-299851/6] WATERWAYE POWERED MACHINES On the basic dynamics of extracting power from waves 25 p0038 &80-14837  WAVE EXCITATION Fast-magnetosonic-wave excitation in large-tokamak plasmas  25 p0056 &80-17855  WAVE GENERATION Non-linear theory of collective processes in laser-pellet interaction and soliton generation 25 p0057 &80-17870  WAVE PROPAGATION Wave propagation in a dc superconducting catle. Part 1: Analysis [LA-UR-79-226]  WEAR Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques components of coal gasification and liquefaction pilot plants [CONF-790480-1]  WEATHER MODIFICATION Neteorological effects of oil refinery operations in Los Angeles [PB-300720/0]  WEATHER STATIONS Assessment of the applicability of the national fire weather data library to wind energy analyses [PNI-2538]  WEIBULL DENSITY FUNCTIONS The estimation of the parameters of the Weitull wind speed distribution for wind energy utilization purposes

BUBLOED STRUCTURES  Evaluation of high chromium overplays to protect	The estimation of the parameters of the Weibull wind speed distribution for wind energy utilization purposes
less alloyed substrates from corrosion in a coal gasification atmosphere [PE-2621-3] 25 p0119 N80-12163	25 p0042 A80-16086 An analysis of the potential of wind energy
BELLS Bell Creek residual oil saturation technology test	conversion systems 25 p0048 A80-17133
[BETC-2180-4] 25 p0108 N80-11546 Geothermal energy. Part 1: Exploration, volume	Methods of estimating the reliability of wind energy systems with storage
3. Citations from the NIIS data base [NIIS/PS-79/0814/8] 25 p0148 N80-13715	[UCRL-15005] 25 p0098 M80-10623 Fluid dynamic aspects of wind energy conversion [AGARD-AG-243] 25 p0103 M80-10683
<pre>#EST VIRGIBLA    Oil recovery by carbon dioxide injection West    Virginia</pre>	Wind energy systems: Program summary [DCE/ET-0093] 25 p0111 N80-11578
[ORO-5301-34] 25 p0108 N80-11545 WIND (METEOROLOGY)	Status of information for consumers of small wind energy systems
Wind resource analysis [SERI/TE-36-088] 25 p0132 N80-12710	[SERI/TP-51-158] 25 p0113 M80-11602 Efforts on the economic analysis of Darrieus
Solar-climactic statistical study windpower utilization and solar energy conversion	vertical axis wind turbines [SAND-78-1851c] 25 p0126 N80-12579
[BCP/T4016-01/2] 25 p0149 N80-13747 WHND EPFECTS On the weathervaning of wind turbines	Solar mechanical energy storage project [SAND-78-1982C] Solar-climatic statistical study. Summary report,
25 p0047 A80-16952 WIND MEASUREMENT	volume 1 [BCP/T4016-1] 25 p0132 Na0-12707
The assessment of actual wind power availability in Ireland	Wind time series analyses for WECS applications [SAND-77-1701] 25 p0132 N80-12709
25 p0003 A80-10844 Measurements on a 15 kW wind energy conversion	Wind resource analysis [SERI/TE-36-088] 25 p0132 N80-12710 Modified power law equations for vertical wind
system 25 p0039 A80-15329 WIND PROFILES	profiles [NASA-TM-79275] 25 p0138 N80-13623
Modified power law equations for vertical wind profiles	Requirements assessment of wind power plants in electric utility systems. Volume 3: Appendixes
[NASA-TM-79275] 25 p0138 N80-13623 WIHD TUNKEL TESTS	[EPRI-ER-978-VOL-3] 25 p0139 N80-13628 Wind energy innovative systems
Experimental demonstration of the diffuser-augmented wind turbine concept 25 p0007 A80-11643	[SERI/PE-13-054] 25 p0144 N80-13674 Induction and synchronous machines for vertical axis wind turbines
Reduction of aerodynamic drag and fuel consumption for tractor-trailer vehicles	[SAND-79-7017] 25 p0144 N80-13675 Environmental development plan: Wind energy
WIND VARIATIONS 25 p0046 A80-16948	conversion [DOE/EDP-0030] 25 p0147 N80-13701
Solar-climatic statistical study. Summary report, volume 1	Solar-climactic statistical study windpower utilization and solar energy conversion
[HCP/T4016-1] 25 p0132 N80-12707 WIND VELOCITY MEASUREMENT A low level wind measurement technique for wind	[HCP/T4016-01/2] 25 p0149 N80-13747 A probabilistic study of wind-electric conversion systems from the point of view of reliability
turbine generator siting 25 p0042 A80-16084	and capacity credit 25 p0153 N80-14475
The estimation of the parameters of the Weibull wind speed distribution for wind energy utilization purposes	Barriers to the application of wind energy conversion systems in urban settings 25 p0155 N80-14494
25 p0042 A80-16086 Modeling and simulation of WECS assisted utility	Analysis of remote site energy storage and generation systems systems analysis of solar
systems Wind-Electric Conversion System 25 p0088 A80-20887	energy conversion and windpower utilization energy storage systems
WINDHILLS (WINDPOWERED MACHINES) Aeroelastic stability and response of horizontal	[AD-A074869] 25 p0156 N80-14504 Darrieus wind turbine program at Sandia Laboratories
axis wind turbine blades 25 p0032 A80-13116 Controllable d.c. power supply from wind-driven	[SAND-79-0997C] 25 p0160 N80-14538 Commercialization strategy report for small wind systems
self-excited induction machines 25 p0075 A80-19031	[TID-28844-DRAFT] 25 p0161 N80-14543 Commercialization strategy report for large wind
Interaction in limited arrays of windmills: Review of earlier results from a simple model	systems [TID-28843-DRAFT] 25 p0161 880-14544
and a presentation of the capabilities of a dynamic PBL model [DM-26] 25 p0116 N80-11631	Assessment of the applicability of the national fire weather data library to wind energy analyses [PNI-2538] 25 p0165 N80-14655
Evaluation of feasibility of prestressed concrete for use in wind turbine blades	Solar/wind handbook for Bawaii: Technical applications for Bawaii, the Pacific Basin and
[NASA-CR-159725] 25 p0170 N80-15553 WINDPOWER UTILIZATION	sites worldwide with similar climatic conditions [UCRL-15053] 25 p0177 N80-15628
The assessment of actual wind power availability in Ireland 25 p0003 A80-10844	WINDPOWERED GENERATORS  Experimental demonstration of the
Some solar energy programmes in the United Nations system	diffuser-augmented wind turkine concept 25 p0007 A80-11643 Electricity generation from jet-stream winds
25 p0006 A80-11342 The pedal wind turbine	25 p0007 A80-11644 Wind energy conversion system with electromagnetic
25 p0008 A80-11645 The compatibility of wind and solar technology	stabiliser 25 p0031 <b>A</b> 80-13004
with conventional energy systems 25 p0008 A80-11828	Autonomous power supplies for telecommunications 25 p0033 A80-13211
A review of the U.S. wind energy programme 25 p0042 A80-16083 Comparative performance measurements on a Savonius	Measurements on a 15 kW wind energy conversion system 25 p0039 A80-15329
rotor with ancillary surfaces	The Kirsten rotor as a wind turbine

25 p0042 A80-16085

The Kirsten rotor as a wind turbine 25 p0039 A80-15330

SUBJECT INDEX ZINC SELENIDES

A low level wind measurement technique for wind turbine generator siting 25 p0042 A80-16084 Comparative performance measurements on a Savonius rotor with ancillary surfaces 25 p0C42 A80-16085 On the weathervaning of wind turbines 25 p0047 A80-16952 An analysis of the potential of wind energy conversion systems 25 p0048 A80-17133 RAPAD - Real-time Accurate Performance Analysis of Data --- for performance estimation of wind energy conversion system
[ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565 Hcrizontal-axis wind generator performance with varying tip speed ratio and rotor orientation
[ASME PAPER 79-WA/SOL-2] 25 p0067 A80-18571
A vortex model of the Darrieus turbine - An analytical and experimental study
[ASME PAPER 79-WA/FE-6] 25 p007C A80-18620
Modeling and simulation of WECS assisted utility
systems --- Wind-Electric Conversion System 25 p0088 180-20887 Methods of estimating the reliability of wind energy systems with storage [UCRL-15005] 25 p0098 N80 25 p0098 B80-10623 Fluid dynamic aspects of wind energy conversion
[AGARD-AG-243] 25 p0103 N80-10683 Executive summary: Mod-1 wind turbine generator analysis and design report
[NASA-CR-159497] 25 p0109 N80-11558 Modified aerospace reliability and quality assurance method for wind turbines
[NASA-TM-79284] 25 p0137 25 p0137 N80-13490 Requirements assessment of wind power plants in electric utility systems. Volume 3: Appendiz [EPRI-ER-978-VOL-3] 25 p0139 N80ne 3: Appendixes 25 p0139 N80-13628 Wind energy innovative systems [SERI/PR-13-054] 25 p0144 N80-13674 Induction and synchronous machines for vertical axis wind turbines [SAND-79-7017] [SAND-79-7017] 25 p0144 N80-13675 Commercialization strategy report for large wind systems [TID-28843-DRAFT] 25 p0161 N80-14544 WINDPOWERED PUMPS A solar assisted and wind powered heat pump for residential dwellings
[ASME PAPER 79-WA/HT-33] 25 p007C A80-18595 WINTER Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370 WIRE CLOTH The spectral selectivity of conducting micromeshes as solar energy absorbers 25 p0087 A80-20720 WOOD Near term potential of wood as a fuel [HCP/C4101] 25 25 p0093 N80-10389 WORKING PLUIDS Transient rise of plate temperature in solar collectors 25 p0023 A80-12746 Selection of working fluids for low temperature solar thermal power cycles 25 p0024 A80-12751 Performance characteristics of solar regenerators 25 p0028 A80-12787 Conduction-type MBD generator with back-and-forth motion of the hybrid working material 25 p0030 A80-12898 Influence of the working fluid on heat transfer and layout of solar tower receivers 25 p0036 A80-14671 Heat exchange fluids and techniques -25 p0041 A80-15659 Utilization of heavy fill gases in annular solar receiver geometries for heat loss reduction [ASME PAPER 79-WA/SUL-10]
Studies on carbon dioxide cycles for power generation. I - Fundamental condensation cycles
25 p0083 A80-19716 [ASME PAPER 79-WA/SOL-18] 25 p0065 A80-18557

X

X RAY ANALYSIS

X-ray measurement of laser fusion targets using least squares fitting

25 p0060 A80-18110

I RAY SPECTRA

Hard X-ray measurements --- performed on plasma confinement devices

25 p0045 A80-16722 Evidence of nonlinear processes from X-ray spectra of CO2 laser-irradiated targets

25 p0046 A80-16776

Ζ

ZINC Zinc-bromine battery studies

25 p0010 A80-11845 Recent advances in zinc-bromine batteries

25 p0010 A80-11846

ZINC SELENIDES

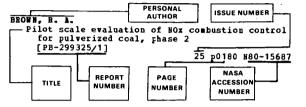
Process design and economic analysis of the zinc selenide thermochemical hydrogen cycle [UCRL-52546] 25 p0164 N80-14571

## PERSONAL AUTHOR INDEX

ENERGY/A Continuing Bibliography (Issue 25)

**APRIL 1980** 

## Typical Personal Author Index Listing



Listings in this index are arranged alphabetically by personal author. The title of the document provides the user with a brief description of the subject matter. The report number helps to indicate the type of document listed (e.g., NASA report, translation, NASA contractor report). The issue, page and accession numbers are located beneath and to the right of the title, e.g., 25 p0180 N80-15687 Under any one author's name the accession numbers are arranged in sequence with the IAA accession numbers appearing first.

AAMODT, R. E.
Drift wave stability and transport theory in fusion systems

25 p0056 A80-17846

AASB. D. T. Fuel production characteristics of fusion hybrid

25 p0059 A80-17888

ABBEY, D.
Water use alternatives for Navajo energy production
fra-fr-79-15981 25 p0178 N80-15643

ABBIN, J. P., JR.
Sandia Laboratories operational experience with small heat engines in solar thermal power systems [SAND-78-2163C] 25 p0146 N80-13693 [SAND-78-2163C]

ABBOTT, I. H. A.
An evaluation of the NASA Tech House, including live-in test results, volume 1

[ NASA-TP-1564] 25 p0 109 N80-11559

ABDEL-KHALIK, S. I.
On the performance of air-based solar heating systems utilizing phase-change energy storage
25 p0020 A80-12427

Impact of technology and maintainability on economic aspects of tokamak power plants 25 p0059 A80-17884

ABDURAKHMANOV, A.
Selective ray-absorption as means of increasing the efficiency of a high-temperature solar energy system

25 p0036 A80-14597 Investigation of absorptive and radiative characteristics of an ideal selective surface 25 p0044 A80-16632

ABELES. T. P. Energy and economic assessment of anaerobic

digesters and biofuels for rural waste management [PB-296523/4] 25 p0094 N80-10398 ABILOCK. H.

Dynamic energy system optimization model [EPRI-EA-1079] 25 p0157 N80-14514 [EPRI-EA-1079] 25 p0 157 N80-MARKAL: A multiperiod linear-programming model for energy systems analysis (BNL version)

[BNL-26390] 25 p0178 N80-15634 ABRAHAM, B. M.

Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 ABRAMS, M. Solar thermal central receiver systems
[ASME PAPER 79-WA/HT-38] 25 p 25 p0070 A80-18596

Hydrogen /Hydride/-air secondary battery

25 p0011 A80-11848
Thermodynamic and structural properties of LaNi/5-y/Aly compounds and their related hydrides 25 p0033 A80-13200

ACHARYA, B. N.
Gals-electrolyte photovoltaic cells 25 p0026 A80-12774

ADAM, J. Design of antennae for R.F. power coupling to tokamak plasma in the ion cyclotron range of frequency

25 p0079 A80-19608 ADLER. D. Environmental data for energy technology policy

analysis. Volume 1: Summary [HCP/EV6119-1] 25 p0098 N80-10629 ADLHART, C. Design and development of a 30 watt solid polymer

electrolyte fuel cell power source fueled with calcium ĥydride [AD-A071157]

AGGEEVA, I. A. Selective ray-absorption as means of increasing the efficiency of a high-temperature solar

energy system 25 p0036 A80-14597

AGNIHOTRI, O. P. A new approach to low cost large area selective surfaces for photothermal conversion

25 p0003 A80-10845 Optical and electrical investigations on annealed

indium oxide selective coatings produced by spray pyrolysis 25 p0023 A80-12747

AHERNS, P. Wa Design optimization of aquifer reservoir-based compressed air storage systems [CONF-781046-5] 25 p0116 N80-11628

AHGREN, B. Utility fuel cells for Sweden

25 p0011 A80-11852

AHLBOH, K.

The Bullaren lineament, southwestern Sweden - A ne Bullaren lineament, southwestein section possible site for geothermal heat extraction 25 p0075 A80-19049

AHLDWALTA, R. K. Convective heat transfer in MHD channels and its influence on channel performance
[AIAA PAPER 80-0178]
Heat transfer including radiation and slag
particles evolution in HHD channel. I 25 p0064 A80-18355

[AIAA PAPER 80-0250] 25 p0076 A80-19304

AHHAD, A.
Optimal oil yield from in situ oil shale retorting 25 p0038 A80-14795

AHMAD, R. S. A policy-sensitive model of technology assessment 25 p0004 A80-11140 AHMADI. G.

Under ground thermal storage in the operation of solar ponds 25 p0077 A80-19471

AHHED, S. B.
An investigation of experimental performance of a compound parabolic concentrator 25 p0023 A80-12748

B-1

AHN,									
R									
	esea	rch	and .	eval:	ation	of biomas	ss		
	res	our	ces/c	onvei	sion/u	tilizatio	on s	ystems	
	a d	ata	base	for	a fuel	nalysis i s from bi	iomas	ss mode	oment or
	[ CO	0-5	022-5						N80-15576
AHNE	R, D	) . J.	•		_		_		
r.	ıxed stu	1-pe:	ı gas:	ifier	dynam	ic model	for	IGCCP	control
	Seu	uy					25	n0 088	A80-20883
AIHA								P	200 20003
L	abor	ato	y co	al ga	sifier	facility	7		
AK AG.			32602	J			25	p0106	N80-11245
			on ca	rhon	dioxid	e cycles	for	DOWET	
	gen	erat	ion.	1 -	Fundam	ental com	idens	sation	cycles
									A80-19716
AKBAI	ZZAD	EH,	A.	thorm	al eto	rage in t	· <b>h</b> o d		
•			onds		ur 500	rage in t	LLE (	peraci	.01 01
			-				25	p0077	A80-19471
AKIN	SETE	, T.	Α.				_		_
A	CDE	ap i	ne s	or or	stills	ing the p	perio	rmance	of
	100	,	pe s	JIUL	311113		25	p0006	A80-11343
AKUL								_	
Ç	ırre	nt e	quil:	ibriu	m and	effective	ior	charg	e in
	L-2	Ste	HIL	ator	plasma		25	20055	A80-17829
ALAR	to,	J.					23	P0 033	800-17029
Pe	erfo	rmai	ice te	estin	g of a	hydroger	hea	t pipe	:
	[AI	AA	PAPER	80-0	212]		25	p0064	A80-18379
ALBAI	ecae nvir	Onme	ntal	cont	rol to	chnology	for	carbon	diorido
	[BN	L-24	999]	COHC	101 00	cumorogy	25	p0117	N80-11639
ALBEI	ŘΥ.	W. J	i.	_					
TI	110h	ine	coate	ed el	ectrod	e for pho	toga	lvanic	cells
Pl	oto	galı	anic	cel1	s		25	p0051	A80-17343
		-					25	p0073	A80-18749
ALEX!	HDB	B, 1	. G.			and tropi		•	
PI	:odu	ctic	n of	suga	rcane	and tropi	.cal	grasse	s as a
	101	CHUL	5/5912	mer 31	SOULC	е			N80-15277
ALEX !	NDE	R. G		_					
Pl	oto	volt	aic	conce	ntrato	r applica	tion	exper	iment.
	Pna	se i	Teter	150 n for	load-	tovoltaic center ap	nlic	centra	tor
	fee	dbac	k int	to th	e util	ity grid	PITC	.ations	ATCH
	[ DO	E/CS	-3426	57/11			25	p0145	N80-13688
VL EX !	NDB	R. J	- H-		£ 1100	clean-up			
נים					1 625	crean-up	broc		
	nam	ic I	odeli	ing o			25	28000	180-20885
AL BX				ing o			25	p0088	A80-20885
	NDE	R, S	. S. msele	ectiv	e memb	cane	25	p0088	
ΑI	NDE ton [NA	R, S per SA-C	. S. msele	ectiv		cane	25	p0088	A80-20885 N80-12551
ALEX <i>I</i>	NDE ton [NA	R, S per SA-C R, W	msele R-159	ecti <b>v</b> 9599]	e memb		25	p0088	
ALEX <i>I</i>	NDE ton [NA NDE lar sur	P, S per SA-C R, R con face	msele R-159 centr	ectiv 9599] rator rtra	e memb s usin cking	rane g vacuum-	25 25 cont	p0088 p0122 oured	N80-12551
ALEXA So	NDE ton [NA NDE lar sur [AI	P, S per SA-C R, W con face	msele R-159 central s for	ectiv 9599] rator rtra	e memb s usin cking		25 25 cont	p0088 p0122 oured	
ALEXA So ALLRI	NDE [NA [NA NDE lar sur [AI	P, S per SA-C R, W con face AA P	msele R-159 centi s for APER	ectiv 5599] rator tra 80-0	e memb s usin cking 399]	g vacuum-	25 25 cont	p0088 p0122 oured p0077	N80-12551
ALEXA So ALLRI	NDE [NA NDE lar sur [AI D,	P, S per SA-C R, W con face AA P D. D	msele R-159 centr s for APER	ective 5599] rator tra 80-0	e memb s using cking 399]	g vacuum-	25 25 cont 25 for	p0088 p0122 oured p0077	N80-12551 A80-19326
ALEXA So ALLRI St	NDE [NA NDE lar sur [AI D, abi	P, S per SA-C R, W Con face AA P D. E lize pera	msele R-159 central s for APER d CVI	ective 5599] rator tra 80-0	e memb s using cking 399]	g vacuum-	25 cont 25 for ener	p0088 p0122 oured p0077 high	N80-12551 A80-19326
ALEXA Sc ALLRI St	NDE ton [NA NDE lar sur [AI D, abi tem	P, S per SA-C R, W con face AA P D. E lize pera	msele R-159 centre s for APER d CVI	ective 9599] rator tra 80-0	e memb s using cking 399] rphous otherm	g vacuum- silicon al solar	25 cont 25 for ener 25	p0088 p0122 oured p0077 high gy ccn p0087	N80-12551 A80-19326 Version A80-20722
ALEXA Sc ALLRI St	NDE ton [NA NDE lar sur [AI abi tem	P, S per SA-C R, W con face AA P D. D lize pera	msele R-159 central s for APER d CVI ture	ective 9599] rator tra 80-0 amo phot	e memb s using cking 399] rphous otherm	g vacuum-	25 cont 25 for ener 25	p0088 p0122 oured p0077 high gy ccn p0087	N80-12551  A80-19326  Version A80-20722
ALLEY ALLER STALLER STALLES ET	NDE ton [NA NDE lar sur [AI tem han [CO	P, S per SA-C R, W con face AA P L ize pera J. B ol/g NF-7 B.	mselecter to selecter to selec	ective 599] cator tra 80-0 ) amo phot ine b	e memb s usin cking 399] rphous otherm	g vacuum- silicon al solar as automo	25 cont 25 for ener 25 tive 25	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168	N80-12551 A80-19326 Version A80-20722
ALLEY ALLER STALLER STALLES ET	NDE ton [NA NDE lar sur [AI tem han [CO LA,	P, S per SA-C R, W Con face AA P D. E lize pera J. B ol/g NF-7 B. rcia	mselecter of the control of the cont	cative 3599] cator tra 80-0 amo phot ine b	e memb s usin cking 399] rphous otherm	g vacuum- silicon al solar	25 cont 25 for ener 25 tive 25	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168	N80-12551  A80-19326  Version A80-20722
ALLEY ALLER STALLER STALLES ET	NDE ton [NA NDE lar sur [AI abi tem [CO LA, mme	R, S per SA-C R, W face AA P Lize pera J./g NF-7 Rcia	msele R-159 central s for APER d CVI ture asoli 90520 C. lizat	cative 3599] cator tra 80-0 amo phot ine b	e memb s usin cking 399] rphous otherm	g vacuum- silicon al solar as automo	25 cont 25 for ener 25 tive 25 for	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168	N80-12551  A80-19326  Version A80-20722  N80-15280
ALLEY ALLES E E T	NDE (NA NDE ) INDE SUR (AI NDE ) A NDE (AI NDE	P, S per SA-C R, W face AA P Lize per AB S NF-7 B. auefa D-28	msele R-159 central s for APER d CVI ture asoli 90520 C. lizat ction 846]	cative 3599] cator tra 80-0 amo phot ine b	e memb s usin cking 399] rphous otherm	g vacuum- silicon al solar as automo	25 cont 25 for ener 25 tive 25 for	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168	N80-12551  A80-19326  Version A80-20722
ALLEN ALLEN E E E ALHUA	NDE INA INA INA INA INA INA INA INA INA INA	R, STACE FALL SALES SALE	mseles R-159 central s for APER d CVI ture asoli 90520 C. lizat ction 846]	rator (ator (b) amo (b) amo (phot (ine b) -5] (ion	e memb	silicon al solar as automo	25 cont 25 for ener 25 tive 25 for 25 icat	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168 coal	N80-12551  A80-19326  Version A80-20722  N80-15280
ALLEN ALLEN E E E ALHUA	NDE INA INA INA INA INA INA INA INA INA INA	R, STACE FALL SALES SALE	mseles R-159 central s for APER d CVI ture asoli 90520 C. lizat ction 846]	rator (19599] rator (1960) (19	e memb	g vacuum- silicon al solar as automo	25 25 cont 25 for ener 25 tive 25 for 25 icat	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168 coal p0135 ion-co	N80-12551  A80-19326  Version A80-20722  N80-15280  N80-13285  mbined
ALLEY ALLES ET ALLES CO	NNDE INDE INDE INDE INDE INDE INDE INDE	R, ST SA-CR	mselectrical sector sec	rator (19599] rator (1960) (19	e memb	silicon al solar as automo	25 25 cont 25 for ener 25 tive 25 for 25 icat	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168 coal p0135 ion-co	N80-12551  A80-19326  Version A80-20722  N80-15280
ALLEY ALLES THE COLOR ALLES THE COLOR ALPERALTS FALLES THE COLOR ALPERALTS FALLES FALL	NNDE ton [NADE lar sur [AI] D, abin tem [CO LA, mme liq [TI e n cyc	R per Windows SR, on the SR, on t	msele R-159 central s for APER d CVI ture asoli 90520 C. lizat ction 846] term lectr	cative 2599] cator tra 80-0 amo phot ine b 0-5] cion	s using cking 399] rphous otherm. lends : strate	silicon al solar as automo gy report for gasif	25 25 cont 25 for ener 25 tive 25 for 25 icat 25	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168 coal p0135 ion-co p0015	N80-12551  A80-19326  Version A80-20722  N80-15280  N80-13285  mbined A80-11970
ALLESS COLUMN SCORE STATEMENT STATEMENT STATEMENT SERVICE STATEMENT SERVICE SE	NNDE I NA I NA	R per SR - Windows SR - SR	msele R-159 central s for APER d CVI ture assoli 90520 C. Lizat ction 846] term lectr	ective 5599] rator tra 80-0 ) amo phot ine b 0-5] cion	s usincking 399] rphous otherm lends: strate	silicon al solar as automo	25 25 cont 25 for ener 25 tive 25 for 25 icat 25	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168 coal p0135 ion-co p0015	N80-12551  A80-19326  Version A80-20722  N80-15280  N80-13285  mbined A80-11970
ALLEY SC St ALLER St C C C C C C C C C C C C C C C C C C	NDE ton [NA NDE to	R per SR - Windows	. S. msele R-159 centron s for services for	ective 5599] rator tra 80-0 ) amo phot ine b 0-5] cion	s usincking 399] rphous otherm lends: strate	silicon al solar as automo gy report for gasif	25 cont 25 for ener 25 for 25 icat 25 ogy	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168 coal p0135 ion-co p0015 assess	N80-12551  A80-19326  Version A80-20722  N80-15280  N80-13285  mbined A80-11970
ALLEXE SC Sc ALLERE St ALLERE ST ALLERE ST ALLERE ST ALLERE ST ALLERE SC ALL	NDE ton [NA Blar Blar Blar Blar Blar Blar Blar Blar	R pa-C No. S.	mselements for ture assoliation assoliatio	rator retra 80-0 amo phot ine b b-5]	s usincking 399] rphous otherm lends: strate over go	silicon al solar as automo gy report for gasif eneration	25 25 cont 25 for ener 25 for 25 icat 25 icat 25 ogy 25	p0088 p0122 oured p0077 high gy ccn p008 coal p0135 ion-co p0015 assess	N80-12551  A80-19326  Version A80-20722  N80-15280  N80-13285  mbined  A80-11970  ment of
ALLEY I SO ALLEY E ST ALLEY E TH CO ALLEY E TH CO ALLEY E TH CO ALLEY E TH CO ALLEY E SO ALLEY E FO	NNDE Iton [NA BL	R pa-C M n. pa-C	mseleR-152 centris for formal series for for formal series for for	rator tra a 80-0 amo phot	s usincking 399] rphous otherm lends: strate over go	silicon al solar as automo gy report for gasif	25 25 cont 25 for ener 25 for 25 icat 25 icat 25 ogy 25	p0088 p0122 oured p0077 high gy ccn p008 coal p0135 ion-co p0015 assess	N80-12551  A80-19326  Version A80-20722  N80-15280  N80-13285  mbined  A80-11970  ment of
AILERI Sco	NNDE ILAN CONTRACTOR OF THE PROPERTY OF THE PR	R pa- Windows and the same of	S.mseleR-152 Centra for Section APER APER APER APER APER APER APER APER	rator tra a 80-0 amo phot	s usincking 399] rphous otherm lends: strate over go	silicon al solar as automo gy report for gasif eneration	25 25 cont 25 for ener 25 tive 25 for 25 icat 25 ogy 25 he d	p0088 p0122 oured p0077 high gy ccn p0087 fuels coal p0135 ion-co p0015 assess p0099 evelop	N80-12551  A80-19326  Version A80-20722  N80-15280  N80-13285  mbined  A80-11970  ment of
ALLERE St ALLERE A	INDER ITON [NA INDER ITON [NA INDER ITON [NA INDER ITON [AI INDER ITON [CO INDER ITON [LA, CO INDER ITON [LA INDER ITON [LA INDER ITON [LA INDER ITON [LA INDER ITON [INDER IT	R pa-Win SA Coce SA CO	mselentis control of the control of	rator retra a 80-0 amo phot ine b 0-5] ion pote ric process retra a 10-0 m retra	s using cking 399] rphous otherm lends a strate over go rom the gram	silicon al solar as automo gy report for gasif eneration e technol	25  cont 25  for ener 25  tive 25  for 25  cogy 25  he d 25	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168 coal p0135 ion-co p0015 assess p0099 evelop	N80-12551  A80-19326  Version A80-20722  N80-15280  N80-13285  mbined  A80-11970  ment of N80-10637  ment of
AILERE St ALLERE St ALLERE St ALLERE ST ALLERE ST ALLERE TH CC	NDE ton [NA A   No A	R pa-Windows A pa-	mselen-152 centris for ture asoli 90520 clizat ction 846] term lectr resuly 79-95 centris 467 term resuly 79-95 centris 568	ratoric tra a 80-0 ano phot ine b 1-5] ion pote ic picture process of tra from the first process of tra from tr	s using cking 399] rphous othermal strate over go rom the gram for endes of second sec	silicon al solar as automo gy report for gasif eneration e technol hancing t	25  cont 25  for ener 25  tive 25  for 25  cogy 25  he d 25	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168 coal p0135 ion-co p0015 assess p0099 evelop	N80-12551  A80-19326  Version A80-20722  N80-15280  N80-13285  mbined  A80-11970  ment of N80-10637  ment of
AILERE St ALLERE St ALLERE St ALLERE ST ALLERE ST ALLERE TH CC	NDE ton [NA A   No A	R pa-Windows A pa-	mselen-152 centris for ture asoli 90520 clizat ction 846] term lectr resuly 79-95 centris 467 term resuly 79-95 centris 568	ratoric tra a 80-0 ano phot ine b 1-5] ion pote ic picture process of tra from the first process of tra from tr	s using cking 399] rphous otherm lends a strate over go rom the gram	silicon al solar as automo gy report for gasif eneration e technol hancing t	25 cont 25 for ener 25 tive 25 icat 25 ogy 25 he d 25 on a	p0088 p0122 oured p0077 high gy ccn p0087 fuels p0168 coal p0135 ion-co p0015 assessi p0099 evelop p0178 nd trai	N80-12551  A80-19326  Version A80-20722  N80-15280  N80-13285  mbined  A80-11970  ment of N80-10637  ment of

```
AMTHOR, P. R.
    Research and development of a heat and pump water
       heater, volume 1 [OBNL/SUB-7321-1]
                                                    25 p0130 N80-12613
 ANAND, D. K.
    Solar cooling performance predictions via stochastic weather algorithms
    25 p0020 A80-12430 Validation methodology for solar heating and
       cooling systems
ANDERSON, C. J.

Energy storage systems for automobile propulsion,
1978 study. 1: Overview and findings
[UCRL-52553-VOL-1] 25 p0105 N80-10970
Environmental aspects of alternative fuels
utilization for highway vehicles
10001-010011 25 p0120 N80-12201
                                                    25 p0020 A80-12431
    [UCRL-81841] 25 p0120 N80-12201
Energy storage system for automobile propulsion,
1978 study. 2: Detailed report
[UCRL-52553-VOL-2] 25 p0181 N80-15995
ANDRESON, J.

Phase 2 of the array automated assembly task for the low cost silicon solar array project
[NASA-CE-162426] 25 p0110 N80-11565
ANDERSON, L. A.
Analysis of remote site energy storage and
generation systems
       [AD-A074869]
                                                    25 p0156 N80-14504
ANDERSON, P. J.
    LNG industry: An of [CONF-7811112-2]
                         An overview of projects and costs
                                                    25 p0168 N80-15278
ANDERSON, T. D.
    Outlook for nuclear fission energy

[CONF-7811126-1] 25 p0157 N80-14509
ANDBESON, W. A.

Relating computer simulation studies with
       interface state measurements on MIS solar cells
                                                    25 p0062 A80-18231
ANDERSSON, B.
Optimization of iron-air and nickel oxide-iron
       traction batteries
                                                    25 p0011 A80-.11847
ANDREEV, N. E. Wave absorption and superreflectivity of laser
       plasmas due to electromagnetic structure
       resonances
                                                    25 p0057 A80-17871
ANDREEV, V. I.
    Conduction-type NHD generator with back-and-forth motion of the hybrid working material
                                                    25 p0030 A80-12898
    Solar assisted heat pump overview and summary of
      in-house research
       [BNL-24911]
                                                    25 p0098 N80-10624
ANDRIA, G. D.
    Mathematical modeling of coal gasification processes
25 p0089 A80-20913
ANDRIUKHINA, B. D.
    Current equilibrium and effective ion charge in
       L-2 stellarator plasma
                                                    25 p0055 A80-17829
    Influence of electrolyte composition on electrode
      kinetics in the molten carbonate fuel cell [CONF-781063-2] 25 p0115 880-11615
ANISINOV, A. H.
    SIBOV, A. n. Induced fields in the motion of a conducting medium in the field of an air-core magnetic system 25 p0061 A80-18138
AMBAKLICHEVA, O.
Results of interdepartmental tests of solar water
      heaters over an annual cycle. I
                                                   25 p0051 A80-17245
ANNAMALAI, N. K.
    Computer analysis of grids currently used for
      CdS/Cu2S solar cells
                                                    25 p0089 A80-20893
ANNAHIIAZOV, K. O.
    Brightness distribution over the solar disk
                                                    25 p0050 A80-17243
ANOSHIN, IU. A.
    NSHIM, 10. m.
Photoconverter with bilateral sensitivity
25 p0044 A80-16625
```

Pionass energy enhancement: A report to the President's Council on Environmental Quality [PB-296624/0] 25 p0094 N80-10396

ANTAL, M. Ji, JR.

ANTHONY, R. G.	ATKINSON, P. G.
Conversion of coal-based methanol to ethylene and	Transient-pressure analysis in geothermal steam reservoirs with an immobile vaporizing liquid
a gaseous fuel [PB-301256/4]	phase
ANTOINE, P.	25 p0076 A80-19209
Development of silver-hydrogen cells	ATKINSON, S. R.
25 p0010 A80-11844	Commercialization strategy report for recovery of
ABTOHOPOULOS, A; A Pusarium species: Their potential for	natural gas from unconventional sources [TID-28848-DRAFT] 25 p0168 N80-15287
transforming biomass to ethanol	AUGENSTRIN, D. C.
[ANL/EES/TM-38] 25 p0151 N80-14271	Methane fermentation of aquatic biomass
AOTA, H.	25 p0043 A80-16148
Studies on carbon dioxide cycles for power generation. I - Fundamental condensation cycles	AUE, P. C. Evlaution of performance enhancement of solar
25 p0083 A80-19716	powered absorption chiller with an improved
APLEY, W. J.	control strategy using the BNL-built hardware
SHADE - A computer model for evaluating the	simulator [BNL-26218] 25 p0162 N80-14552
optical performance of two-axis tracking parabolic concentrators	AULD, H. E.
[ASME PAPER 79-WA/SOL-13] 25 p0068 A80-18581	Analysis of field test results for
APOLLONSKII, S. M.	single-axis-tracking solar collector foundations
Calculation of the low-frequency electromagnetic field of MHD machines encapsulated in a common	[SAND-79-7023] 25 p0173 N80-15586 AULT, L. B.
screening shell	Summary report of the Solar Reflective Materials
25 p0030 A80-12896	Technology Workshop
APPELMAN, E. H.	[PNL-2763] 25 p0097 N80-10613
Experimental verification of the mercury-iodine thermochemical cycle for the production of	AUSTIN, A. L. New concepts for converting the energy in low-to
hydrogen from water, ANL-4	medium-temperature liquids, with emphasis on
[CONF-780807-11] 25 p0150 N80-14265	geothermal applications
APPELT, J.	[UCBL-52583] 25 p0125 N80-12570
Nuclear fusion by cylindrical ion implosion 25 p0058 A80-17874	Lawrence Livermore Laboratory geothermal energy program: A status report on the development of
ARCHBOLD, P.	the Total-Flow concept
OTEC-1 test conductor program	[UCRL-50046-77] 25 p0159 N80-14529
[CONF-780550-9] 25 p0163 N80-14563	AUZILLBAU, J.
ARMINGTON, K. Direct labor requirements for select solar energy	Autonomous power supplies for telecommunications 25 p0033 A80-13211
technologies: A review and synthesis	AVEZOV, R. R.
[SERI/RR-53-045] 25 p0 126 N80-12578	On a calculation procedure for a heat accumulator
ARMSTRONG, J. R. C. A review of the U.S. wind energy programme	in a solar heating system 25 p0044 A80-16630
25 p0042 A80-16083	Investigation of aerodynamic drag of solar air
ARORA, J. D.	heaters
Performance of silicon solar cells in front of a	25 p0044 A80-16631
water absorber 25 p0019 A80-12125	AXON, R. B.
water absorber 25 p0019 A80-12125 ARRILLAGA, J.	
25 p0019 A80-12125 ARRILLAGA, J. Controllable d.c. power supply from wind-driven	AXON, R. B. Results from the Divertor Injection Tokamak Experiment /DITE/ 25 p0054 A80-17754
25 p0019 A80-12125 ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines	AXON, R. B.  Results from the Divertor Injection Tokamak  Experiment /DITE/  25 p0054 A80-17754  AZECHI, B.
ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031 ARVIZU, D. E.	AXON, R. B.  Results from the Divertor Injection Tokamak  Experiment /DITE/  25 p0054 A80-17754  AZECHI, H.  Inertial confinement fusion research at Osaka  25 p0057 A80-17868
25 p0019 A80-12125  ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development	AXON, R. B.  Results from the Divertor Injection Tokamak  Experiment /DITE/  25 p0054 A80-17754  AZECHI, H.  Inertial confinement fusion research at Osaka  25 p0057 A80-17868  AZIHOV, O.
25 p0019 A80-12125  ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031  ARVIZU, D. E. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642	AXON, R. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H.  Inertial confinement fusion research at Osaka  25 p0057 A80-17868  AZIBOV, O.  On a calculation procedure for a heat accumulator
25 p0019 A80-12125  ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHNIKOV, A. V. Investigation of plasma heating by powerful	AXON, R. B.  Results from the Divertor Injection Tokamak  Experiment /DITE/  25 p0054 A80-17754  AZECHI, H.  Inertial confinement fusion research at Osaka  25 p0057 A80-17868  AZINOV, O.  On a calculation procedure for a heat accumulator  in a solar heating system  25 p0044 A80-16630
25 p0019 A80-12125  ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHANNIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams	AXON, R. B. Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIBOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIBOV, S. A.
ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHBIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H.  Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O.  On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A.  Calculation of the optical characteristics of
25 p0019 A80-12125  ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHANNIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams	AXON, R. B. Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIBOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIBOV, S. A.
ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHBIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857  ASBURY, J. G. Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces  25 p0044 A80-16629  AZODI, H.
25 p0019 A80-12125  ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHHIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857  ASBURY, J. G. Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H.  Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O.  On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A.  Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H.  End plugging of a hot linear theta pinch
ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHBIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857  ASBURY, J. G. Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces  25 p0044 A80-16629  AZODI, H.
25 p0019 A80-12125  ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHNIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857  ASBURY, J. G. Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370 Electric heat - The right price at the right time 25 p0062 A80-18184	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces  25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824
25 p0019 A80-12125  ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHHIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857  ASBURY, J. G. Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J. Implementation of state solar incentives: A	AXON, R. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824
25 p0019 A80-12125  ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHBIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857  ASBURY, J. G. Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J. Implementation of state solar incentives: A precliminary assessment	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces  25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824
ARRILLAGA, J.  Controllable d.c. power supply from wind-driven self-excited induction machines  25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHNIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams 25 p0056 A80-17857  ASBURY, J. G. Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370 Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J. Implementation of state solar incentives: A preliminary assessment [SBRI/TR-51-159]  ASTER, R. W.	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear
ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines  25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHBIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  ASBURY, J. G. Solar availability for winter space heating - An analysis of SOLHET data, 1953 to 1975  Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J. Implementation of state solar incentives: A preliminary assessment [SERI/TE-51-159] 25 p0158 N80-14520  ASTER, R. W. SAMICS: Input data preparation	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces  25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii,
ARRILLAGA, J.  Controllable d.c. power supply from wind-driven self-excited induction machines  25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAMBLKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  ASBURY, J. G. Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J. Implementation of state solar incentives: A preliminary assessment [SERI/TR-51-159] 25 p0158 N80-14520  ASTER, R. W. SAMICS: Input data preparation [NASA-CR-162421] 25 p0110 N80-11570	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H.  Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O.  On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A.  Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H.  End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W.  Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979
ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines  25 p0075 A80-19031  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHBIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  ASBURY, J. G. Solar availability for winter space heating - An analysis of SOLHET data, 1953 to 1975  Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J. Implementation of state solar incentives: A preliminary assessment [SERI/TE-51-159] 25 p0158 N80-14520  ASTER, R. W. SAMICS: Input data preparation	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces  25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii,
ARRILLAGA, J.  Controllable d.c. power supply from wind-driven self-excited induction machines  ARVIZU, D. B.  Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAMBLKOV, A. V.  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  ASBURY, J. G.  Solar availability for winter space heating - An analysis of SOLHET data, 1953 to 1975  Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J.  Implementation of state solar incentives: A preliminary assessment [SERI/TR-51-159] 25 p0158 N80-14520  ASTER, R. W.  SAMICS: Input data preparation [NASA-CR-162421] 25 p0110 N80-11570  ATAMACKOVIC, B.  Neutral electrolyte aluminium-air battery 25 p0011 A80-11849	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979  25 p0047 A80-17126  Exploring alternative energy strategies 25 p0047 A80-17127
ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHBIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  ASBUBY, J. G. Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975  Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J. Implementation of state solar incentives: A preliminary assessment [SERI/TR-51-159] 25 p0158 N80-14520  ASTER, R. W. SAMICS: Input data preparation [NASA-CR-162421] 25 p0110 N80-11570  ATAMACKOVIC, B. Neutral electrolyte aluminium-air battery 25 p0011 A80-11849	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979  25 p0047 A80-17126  Exploring alternative energy strategies 25 p0047 A80-17127  BAEB, C. A.
ARRILLAGA, J.  Controllable d.c. power supply from wind-driven self-excited induction machines  ARVIZU, D. B.  Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAMBLKOV, A. V.  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  ASBURY, J. G.  Solar availability for winter space heating - An analysis of SOLHET data, 1953 to 1975  Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J.  Implementation of state solar incentives: A preliminary assessment [SERI/TR-51-159] 25 p0158 N80-14520  ASTER, R. W.  SAMICS: Input data preparation [NASA-CR-162421] 25 p0110 N80-11570  ATAMACKOVIC, B.  Neutral electrolyte aluminium-air battery 25 p0011 A80-11849	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979  25 p0047 A80-17126  Exploring alternative energy strategies 25 p0047 A80-17127
ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHBIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  ASBUBY, J. G. Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975  Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J. Implementation of state solar incentives: A preliminary assessment [SERI/TE-51-159] 25 p0158 N80-14520  ASTER, R. W. SAMICS: Input data preparation [MASA-CR-162421] 25 p0110 N80-11570  ATMACKOVIC, B. Neutral electrolyte aluminium-air battery 25 p0011 A80-11849  ATHAY, T. M. Area load-frequency control  ATKIESOH, D. S.	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979  25 p0047 A80-17126  Exploring alternative energy strategies 25 p0047 A80-17127  BAEE, C. A. RAPAD - Real-time Accurate Performance Analysis of Data [ASHE PAPER 79-WA/SOL-1] 25 p0066 A80-18565
ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines  ARVIZU, D. E. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0 140 N80-13642  ARZHAHHIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams  25 p0 056 A80-17857  ASBURY, J. G. Solar availability for winter space heating - An analysis of SOLHET data, 1953 to 1975  Electric heat - The right price at the right time 25 p0 062 A80-18184  ASHWORTH, J. Implementation of state solar incentives: A preliminary assessment [SERI/TE-51-159] 25 p0 158 N80-14520  ASTER, R. W. SAMICS: Input data preparation [NASA-CR-162421] 25 p0 110 N80-11570  ATANACKOVIC, M. Neutral electrolyte aluminium-air battery  ATHAY, T. M. Area load-frequency control  ATKINSON, D. W. Heating, Confinement and fluctuations in the CLEO	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979  25 p0047 A80-17126  Exploring alternative energy strategies 25 p0047 A80-17127  BAEE, C. A. RAPAD - Beal-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565  BAEE, B.
ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHBIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  ASBUBY, J. G. Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975  Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J. Implementation of state solar incentives: A preliminary assessment [SERI/TE-51-159] 25 p0158 N80-14520  ASTER, R. W. SAMICS: Input data preparation [MASA-CR-162421] 25 p0110 N80-11570  ATMACKOVIC, B. Neutral electrolyte aluminium-air battery 25 p0011 A80-11849  ATHAY, T. M. Area load-frequency control  ATKIESOH, D. S.	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979  25 p0047 A80-17126  Exploring alternative energy strategies 25 p0047 A80-17127  BAEE, C. A. RAPAD - Real-time Accurate Performance Analysis of Data [ASHE PAPER 79-WA/SOL-1] 25 p0066 A80-18565
ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHAHHIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  ASBURY, J. G. Solar availability for winter space heating - An analysis of SOLHET data, 1953 to 1975  Electric heat - The right price at the right time 25 p0066 A80-11370 Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J. Implementation of state solar incentives: A preliminary assessment [SEBI/TR-51-159] 25 p0158 N80-14520  ASTER, R. W. SAMICS: Input data preparation [NASA-CR-162421] 25 p0110 N80-11570  ATANACKOVIC, M. Neutral electrolyte aluminium-air battery  ATHAY, T. M. Area load-frequency control  25 p0022 A80-12735  ATKINSON, D. W. Heating, confinement and fluctuations in the CLEO stellarator  25 p0055 A80-17826	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  BB  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979  25 p0047 A80-17126  Exploring alternative energy strategies 25 p0047 A80-17127  BAEE, C. A. RAPAD - Beal-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565  BAEE, B. Assessment of the applicability of the national fire weather data library to wind energy analyses [PNI-2538] 25 p0165 N80-14655
ARRILLAGA, J.  Controllable d.c. power supply from wind-driven self-excited induction machines  ARVIZU, D. B.  Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHANHIKOV, A. V.  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  ASBURY, J. G.  Solar availability for winter space heating - An analysis of SOLHET data, 1953 to 1975  Electric heat - The right price at the right time 25 p0062 A80-1884  ASHWORTH, J.  Implementation of state solar incentives: A preliminary assessment [SERI/TR-51-159] 25 p0158 N80-14520  ASTER, R. W.  SAMICS: Input data preparation [NASA-CR-162421] 25 p0110 N80-11570  ATANACKOVIC, B.  Neutral electrolyte aluminium-air battery 25 p0011 A80-11849  ATHAY, T. M.  Area load-frequency control  ATKINSON, D. W.  Heating, confinement and fluctuations in the CLEO stellarator 25 p0055 A80-17826  ATKINSON, P.  Analysis of reservoir pressure and decline curves	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZINOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZINOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979  25 p0047 A80-17126  Exploring alternative energy strategies 25 p0047 A80-17127  BAEE, C. A. RAPAD - Beal-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565  BAEE, M. Assessment of the applicability of the national fire weather data library to wind energy analyses [PNL-2538] 25 p0165 N80-14655  BAGATIN, M.
ARRILLAGA, J. Controllable d.c. power supply from wind-driven self-excited induction machines  ARVIZU, D. B. Solar thermal test facility heliostat development [SAND-78-1177] ARZHAMBIKOV, A. V. Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  ASBUBY, J. G. Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975  Electric heat - The right price at the right time 25 p0062 A80-18184  ASHWORTH, J. Implementation of state solar incentives: A preliminary assessment [SERI/TR-51-159]  ASTER, R. W. SAMICS: Input data preparation [NASA-CR-162421]  ATMACKOVIC, B. Neutral electrolyte aluminium-air battery  ATHAY, T. M. Area load-frequency control  ATKINSON, D. B. Heating, confinement and fluctuations in the CLEO stellarator  25 p0055 A80-17826  ATKINSON, P. Analysis of reservoir pressure and decline curves in Serrazzano zone, Larderello geothermal field	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZIMOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZIMOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979  25 p0047 A80-17126  Exploring alternative energy strategies 25 p0047 A80-17127  BAEE, C. A. RAPAD - Real-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565  BAER, B. Assessment of the applicability of the national fire weather data library to wind energy analyses [PNL-2538] 25 p0165 N80-14655  BAGATIN, M. Studies on plasma formation, relaxation and
ARRILLAGA, J.  Controllable d.c. power supply from wind-driven self-excited induction machines  ARVIZU, D. B.  Solar thermal test facility heliostat development [SAND-78-1177] 25 p0140 N80-13642  ARZHANHIKOV, A. V.  Investigation of plasma heating by powerful relativistic electron beams  25 p0056 A80-17857  ASBURY, J. G.  Solar availability for winter space heating - An analysis of SOLHET data, 1953 to 1975  Electric heat - The right price at the right time 25 p0062 A80-1884  ASHWORTH, J.  Implementation of state solar incentives: A preliminary assessment [SERI/TR-51-159] 25 p0158 N80-14520  ASTER, R. W.  SAMICS: Input data preparation [NASA-CR-162421] 25 p0110 N80-11570  ATANACKOVIC, B.  Neutral electrolyte aluminium-air battery 25 p0011 A80-11849  ATHAY, T. M.  Area load-frequency control  ATKINSON, D. W.  Heating, confinement and fluctuations in the CLEO stellarator 25 p0055 A80-17826  ATKINSON, P.  Analysis of reservoir pressure and decline curves	AXON, K. B.  Results from the Divertor Injection Tokamak Experiment /DITE/  25 p0054 A80-17754  AZECHI, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  AZINOV, O. On a calculation procedure for a heat accumulator in a solar heating system  25 p0044 A80-16630  AZINOV, S. A. Calculation of the optical characteristics of high-power two-mirror solar furnaces 25 p0044 A80-16629  AZODI, H. End plugging of a hot linear theta pinch 25 p0055 A80-17824  B  BACH, W. Renewable energy prospects; Proceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979  25 p0047 A80-17126  Exploring alternative energy strategies 25 p0047 A80-17127  BAEE, C. A. RAPAD - Beal-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565  BAEE, M. Assessment of the applicability of the national fire weather data library to wind energy analyses [PNL-2538] 25 p0165 N80-14655  BAGATIN, M.

25 p0075 A80-19205

field

BAILEY, E. E. Methanol from coal - An adaption from the past 25 p0033 A80-13224

```
Energy from the West: Energy resource development systems report. Volume 5: Oil and natural gas [PB-299181/8] 25 p0152 880-14467
     Doublet III neutral beam injection system overview
                                                                                                   [PB-299181/8] 25 p0152 880-144
Energy from the West: Energy resource development
       and status report
                                                         25 p0079 A80-19599
                                                                                                       systems report. Volume 6: Geothermal
BAILIE, R. C.
    Research and evaluation of biomass
resources/conversion/utilization systems
(market/experimental analysis for development of
                                                                                                       [PB-299182/6]
                                                                                                                                                        25 p0152 N80-14468
                                                                                               BALHER, J. B. Laser fusion implications of resonance absorption and associated electrostatic field pressure
25 p0057 A80-17869
        à data base for a fuels from biomass model)
       [COO-5022-5]
                                                        25 p0172 N80-15576
BAIR, W. G.
HYGAS process update
                                                                                               BALON, J. E. SEASAI demonstration experiments with the offshore
        [CONF-781045-4]
                                                                                                       oil, gas and mining industries
                                                         25 p0120 N80-12200
BAIRAMOV, E.
Results of interdepartmental tests of solar water
                                                                                                       [ NASA-CR-162423]
                                                                                                                                                        25 p0108 N80-11532
                                                                                                    Preliminary assessment of industrial needs for an advanced ocean technology
[NASA-CE-162435] 25 p0118 N80-11
        heaters over an annual cycle. I
                                                         25 p0051 A80-17245
                                                                                                                                                        25 p0118 N80-11747
BAIRD, M. D.
Recent advances in high temperature primary
                                                                                               BAHHBRT, K.
                                                                                                   Influence of the working fluid on heat transfer and layout of solar tower receivers
       lithium batteries
                                                         25 p0013 A80-11863
                                                                                                                                                        25 p0036 A80-14671
                                                                                               BANKEROT, R. B.

Design, evaluation, and testing of a moderately concentrating, non-tracking solar energy collector [ASME PAPER 79-WA/SOL-3] 25 p0067 A80-18570
BAJURA, R. A.

Effect of vertical scale distortion on the
       temperature field of a thermal-hydraulic model [PB-297274/3] 25 p0108 N80-1
                                                         25 p0 108 N80-11551
BAKER, A.
Coal liquefaction - An international perspective
25 p0015 A80-11964
                                                                                                    A design method for optimizing collector systems for small solar center receivers
[ASME PAPER 79-WA/SOL-14] 25 p0068 A80-18
                                                                                                                                                       25 p0068 A80-18580
                                                                                               BARABOV, G. L.
     Phosphoric acid fuel-cell electrocatalysts from
                                                                                                   Digital computer modeling of steady-state
        pyropolymer ceramic composites
                                                                                                       conditions of the magnetoplasmadynamic generator
                                                         25 p0012 A80-11861
                                                                                                       current laver
BAKER, C. C.
Impact of technology and maintainability on
economic aspects of tokamak power plants
25 p0059 A80-17884
                                                                                                                                                        25 p0083 A80-20058
                                                                                               BARAHOUSKI, J.
Nuclear fusion by cylindrical ion implosion
                                                                                                                                                        25 D0058 A80-17874
BAKER, Ca R.
Economics of hydrogen production and liquefaction updated to 1980
                                                                                                    Workshop on Geothermal Resource Assessment and
Beservoir Engineering, Larderello, Italy,
September 12-16, 1977, Proceedings
        [NASA-CR-159163]
                                                         25 p0106 N80-11238
BAKER, D. A.

LASL toroidal reversed-field pinch programme
25 p0054 A80-17809
                                                                                                                                                        25 p0075 A80-19201
                                                                                                   Photoelectrochemistry and heterogeneous photocatalysis at semiconductors
BAKER, L. J.
    Some implications of a cellular structure in minimum thickness fusion reactor blankets
25 p0081 A80-19663
                                                                                                                                                       25 p0073 A80-18750
                                                                                               BARDHAN, A. R.
                                                                                                   Review of the work done at C.E.B.R.I. on the
development of single crystal silicon solar
    High-BTU coal gasification processes
[ANL/CES/TE-79-2] 25
                                                                                                       cells for use with concentrated light
                                                         25 p0150 N80-14263
                                                                                                                                                        25 p0027 A80-12777
BAKER, R. D.
                                                                                               BARKER, A. S., JR.
Photovoltaic solar cell array used for
     General-purpose heat source project space nuclear
       safety program and radioisotopic terrestrial
                                                                                                       supplemental power generation
       safety program [LA-7519-PR]
                                                                                                                                                        25 p0061 A80-18129
                                                                                               BARKER, R. J.
The effect of current shear on the tearing
                                                         25 p0118 N80-11889
BAKER, R. W.
A low level wind measurement technique for wind
                                                                                                       instability
        turbine generator siting
                                                                                                                                                        25 p0059 A80-18086
                                                         25 p0042 A80-16084
                                                                                               BARLOW, T. M.
                                                                                                   LOW, T. M.

Mechanical energy storage technology development
for electric and hybrid vehicle applications
[UCRL-81786] 25 p0128 N80-12596
BAKEB, W.
150-kV, 80-A solid state power supply for neutral beam injection
25 p0080 A80-196
                                                                                                BARNES, P. M.
BALCOMB, J. D.
Sensitivity of direct gain space heating
                                                                                                   Ignitron switching problems associated with a large reversed field pinch experiment
        performance to fundamental parameter variations
                                                                                                                                                        25 p0081 A80-19629
                                                        25 p0060 A80-18128
                                                                                               BARR, W. L.
     Performance of Los Alamos solar Mobile/Modular Home Unit no. 1
                                                                                                   Tandem mirror reactors
                                                                                                                                                        25 p0059 A80-17887
       [LA-UR-78-2587]
                                                                                               BARRA, O. & As A theoretical study of laminar free convection in 1-D solar induced flows
                                                         25 p0126 N80-12577
BALL, G. L.
     Energy storage for solar air conditioning applications utilizing a form-stable, high
                                                                                                                                                        25 p0005 A80-11337
        density polyethylene pellet bed [MLH-2598 (OP)]
                                                                                               BARRETT, B. W.
                                                         25 p0113 N80-11603
                                                                                                    Meteorological effects of oil refinery operations
BALLARD, S. C.
Energy from the West:
    Energy from the West: Energy resource development systems report. Volume 1: Introduction and general social controls [PB-299177/6] 25 p0152 N80-1446 Energy from the West: Energy resource development systems report. Volume 2: Coal [PB-299178/4] Energy from the West: Energy resource development systems report. Volume 3: 0il shale [PB-299179/2] 25 p0152 N80-1446
                                                                                                      in Los Angeles [FB-300720/0]
                                                                                                                                                        25 p0180 N80-15758
                                                                                               BARROW, W.

Geothermal energy market study on the Atlantic coastal plain. Economic evaluation model for
                                                         25 p0152 N80-14463
                                                                                                       coastal plain. Economic evaluation model for direct use of moderate temperature, up to 250 F, geothermal resources in the northern Atlantic
                                                       25 p0152 N80-14464
                                                                                                       [PB-298785/7]
                                                                                                                                                        25 p0165 N80-14578
                                                                                               BARRON, W. P.
     Systems report.

[PB-299179/2]

Energy from the West: Energy resource development systems report. Volume 4: Uranium

25 p0152 N80-1440
                                                        25 p0152 N80-14465
                                                                                                   Energy program at the Johns Hopkins University
Applied Physics Laboratory
                                                                                                      [PB-310245/7]
                                                                                                                                                        25 p0179 N80-15648
                                                         25 p0152 N80-14466
```

PERSONAL AUTHOR INDEX BEN-DAVID, S.

ARTH, E. A.	BEAUFRERE, A. H.
Investigation of the effects of the installation	Hydrogen-halogen energy storage system
of an oxidation catalyst on a diesel powered	[BNL-50924] 25 p0139 N80-13632
Vehicle	BEAULIEU, A. THE TANK OF THE PROPERTY OF THE P
[PB-299928/2] 25 p0180 N80-15699 ARTHOLME, L. G.	The A-I/1-y/B-I/y/C-IIID-VI/2x/E-VI2/1-x/ pentenary alloy system and its application to
Development of Li-Al/FeS cells with LiCl-rich	photovoltaic solar energy conversion
electrolyte	25 p0046 A80-16786
[CONF-7810135-2] 25 p0176 N80-15614	BECHTOLD, B. L.
ARTLIT, J. B.	Driving cycle comparisons of energy economies and
Environmental options for coal use	emissions from an alcohol and gasoline fueled
[LA-UR-79-1393] 25 p0165 N80-14584	vehicle
BARTSCH, R. R.	[CONF-790520-7] 25 p0134 N80-13274
Recent developments in linear theta-pinch and laser-heated solenoid research	BECKER, D. A.
25 p0055 A80-17825	Measurements and standards for recycled oil - 2 [PB-299951/4] 25 p0167 N80-15275
DASIULIS, A	BECKER, B. W. 25 po 107 R80-1527.
Osmotically pumped energy transport system	Construction and test of a high power injector of
[AIAA PAPER 80-0210] 25 p0064 A80-18378	hydrogen cluster ions
BASSETT, W. W.	25 p0080 A80-19618
Cost-effective control systems for solar heating	BECKER, M.
and cooling applications	Feasible thermophysical conditions for gas
[SAN-1592-1] 25 p0101 N80-10658	receiver tubes in solar power stations
BASU, P. Annealing and degradation studies of ceramic CdS	[ASME PAPER 79-WA/HT-37] 25 p0071 A80-18627
solar cells	BECKMAN, W. A. Computers in the design of solar energy systems
25 p0026 A80-12771	25 p0020 A80-12420
BASU, T. K.	Comparisons of measured and simulated performance
Experimental studies of neutron multiplication	for CSU Solar House I
from beryllium /n, 2n/ reaction in CTR blankets	[ASME PAPER 79-WA/SOL-35] 25 p0070 A80-18590
25 p0081 A80-19662	BEDAIR, S. 5.
DATCHELOR, D. B.	AlGaAs tunnel diode
The Elmo Bumpy Torus /EBT/ reactor	25 p0046 A80-16799
25 p0058 A80-17883	Novel concentrator photovoltaic converter system development
BATES, J. O. OTEC-1 test conductor program	[SAND-79-7040] 25 p0143 N80-1366
[CONF-780550-9] 25 p0 163 N80-14563	BRECA, D.
BAUM, I. V.	Commercialization task force for high Btu
Algorithm for calculating the shading and blocking	gasification
of the heliostats of a solar electric power plant	[TID-28849] 25 p0135 N80-13286
25 p0 C51 A80-17246	BEESON, J. L.
Structure of an averaged statistical pencil of	Research and development of rapid hydrogenation
rays reflected from a heliostat 25 p0051 A80-17247	for coal conversion to synthetic motor fuels (riser cracking of coal)
BAUH, V. A.	[FE-2307-38] 25 p0106 N80-11249
Brightness distribution over the solar disk	BEHN, B.
25 p005C A80-17243	A multi-pulse ruby laser recording of the temporal
BAUMAN, A. J.	evolution of plasma parameters by light scattering
Holten salt pyrolysis of latex	25 p0084 A80-20165
[NASA-CASE-NPO-14315-1] 25 p0092 N80-10361	BEHRIN, B.
BAUMGAERTEL, K.  Wave absorption and superreflectivity of laser	Energy storage system for automobile propulsion, 1978 study. 2: Detailed report
plasmas due to electromagnetic structure	[UCRL-52553-VOL-2] 25 p0181 N80-15995
resonances	BEHRISCH, B.
25 p0057 A80-17871	Spatial and depth distribution of deuterium,
BAXTER, G. A.	oxygen, and limiter materials on the liner of
Results from the Divertor Injection Tokamak	TFR 400
Experiment /DITE/	25 p0082 A80-19682
25 p0054 A80-17754 BAXTER, V. D.	BEKIABIAN, A. Work on laser interaction and implosion at Centre
Intermediate report on the performance of	d'Etudes de Limeil
plate-type ice-maker heat pumps	25 p0057 A80-17863
[ORNL/CON-23] 25 p0176 N80-15619	BELL, C. A.
BAYLIN, F.	Solar-thermal jet pumping for irrigation
Low temperature thermal energy storage: A	[AIAA PAPER 80-0402] 25 p0077 A80-19328
state-of-the-art survey	BELL, R. L.
[SERI/RH-54-164] 25 p0172 N80-15583 BAZAROV, B. A.	Concentration ratio and efficiency in thermophotovoltaics
Thermodynamic analysis of thermomechanical solar	25 p0005 A80-11336
energy converters operating in conjunction with	BELLONO, P.
solar cells	Electrical power system to TFTR poloidal coils
25 p0035 A80-14592	25 p0080 A80-19620
BAZAROV, G. P.	BELLOWS, R. J.
Determination of the geometry of the transition region of a series MHD generator	Zinc-bromine battery studies
25 p0030 A80-12900	25 p0010 A80-11845
Influence of the loading factor on the performance	Analysis of S-band solid-state transmitters for
characteristics of series MHD generators	the solar power satellite
25 p0061 A80-18137	[NASA-CR-160320] 25 p0096 N80-10600
Characteristics of series channels with a	BEN-DAVID, S.
diminishing electrode-commutation angle in the	Passive and active residential solar heating: A
transition section	comparative economic analysis of select designs
25 p0061 A80-18139	25 p0021 A80-12435
BEARD, J. T. Experimental and theoretical evaluation of a novel	Economic performance of passive solar heating: A preliminary analysis
concentrating solar energy collection system	[LA-UR-78-2861] 25 p0100 N80-10645

BRNATTAR, R.	ion	BERNARD, M. J., II
Experimental studies of interacti processes in laser fusion	-	Environmental p vehicle use t
BENDANIEL, D. J.	25 p0057 180-17864	CONF-790520- BERNATORICZ, D. T.
Semiconductor alternating-current energy conservation	t motor drives and	Space solar cel damage
	25 p0034 A80-13861	[NASA-TM-8138
BENDER, D. J. Tandem mirror reactors		BERT, C. W. Whirling respon
BENEMANN, J. R.	25 p0059 A80-17887	mounted, ring [ASME PAPER 7
Biofuels: A survey [EPRI-ER-746-SR]	25 p0107 N80-11250	Lateral and til
BENENATI, R.	_	flywheel syst [SAND-78-7070
Fusion energy for hydrogen product [BNI-24906]	ction 25 p0180 N80-15897	Whirling respon mounted, ring
BENFORD, S. H. The erosion/corrosion of small su	nerallov turbine	[SAND-78-7073 Research on the
rotors operating in the effluer		flywheel syst
combustor	25 p0001 A80-10043	[SAND-78-7074 Critical speeds
BENJAMIN, B. M. Chemical structures and reactivit	ties of coal as an	rim-type comp [SAND-78-7049
organic natural product		BERTOLACINI, R. J.
[CONF-790415-25] BENNER-DRURY, D. L.	25 p0105 N80-11168	Catalyst develo [EPRI-AP-1084
Multi-use geothermal energy system augmentation for enhanced utilities.		BERTOLINI, E. Main power supp
Non-electric application of geo Susanville, California		experiments
[DOF/ET-248447/1]	25 p0142 N80-13660	BERTRAN, KL M.
Conceptual designs for two reject	t heat systems for	Implementing en energy materi
a Brayton closed-cycle converte	er 25 p0144 N80-13677	Energy and ot decisions
BENSON, D. K.	-	[ ANL/EES-TM-3
Materials research - Probable imp energy		BESSOLOV, V. N. Broadband variz
Thermoelectric ocean thermal ener	25 p0018 A80-11991	converters wi
[SERI/TF-35-254] BERDAHL, P.	25 p0124 N80-12564	BETTIS, B. S.
Analysis of the California solar		The Elmo Bumpy
[LBL-7860-VOL-2] BERENY, J. A.	25 p0127 N80-12589	BEVAN, J. A survey of ele
Engineers guide to solar energy [PB-297043/2]	25 p0164 N80-14574	programs [NASA-CR-1624
BEREZHETSKII, H. S. Current equilibrium and effective	-	BEVILAQUA, O. M.
L-2 stellarator plasma	<u>-</u>	Environmental p vehicle use t
BERGER, D. P.	25 p0055 A80-17829	[CONF-790520- BEVZIUK, H. I.
High-beta tokamaks	25 p0054 A80-17789	Heat flow and h
BERGER, R. L.	23 p0034 200 17703	bottom sedime
The KMSF laser fusion programme	25 p0056 A80-17860	BHARDWAJ, R. K. Performance of
BERGERON, K. D. Solar enhanced oil recovery - An	assessment of	concentrators
economic feasibility	25 p0078 A80-19472	BHASKARAB, K. A.
	assessment of	A parametric st
economic feasibility [SAND-79-0787]	25 p0178 N80-15641	BHATNAGAR, P. K. Effect of thin
BERGLES, A. E. Energy conservation via heat tran		relations of
[COO-4649-4] BERGSTROM, C.	25 p0147 N80-13707	Effect of image
MARKAL: A multiperiod linear-pro	gramming model	MOS solar cel
for energy systems analysis (BM [BNL-26390]	IL version) 25 p0178 N80-15634	BHATTACHARYA, S. Experimental st
BRHHRIM, C. J. Energy storage systems for automo	-	concentration
1978 study. 1: Overview and f	indings	Experimental in
[UCRL-52553-VOL-1] BERKELIEV, A.	25 p0·105 N80-10970	metals for Sc
Broadband varizone Ga/1-x/Al/x/As converters with an illuminated	s-Si-photoelectric n-region	BHUMRALKAR, C. M. The impact of a
BERMAN, I.	25 p0044 A80-16626	conversion pla
Interim structural design standar		conditions -
energy applications, phases 1 a [SAND-79-8183]	and 2 25 p0146 N80-13698	BIBERMAN, L. M.  Heat transfer is

25 p0031 A80-13004

BERNA, N.
Wind energy conversion system with electromagnetic

```
planning and assessment for highway
o alcohol fuels
                        25 p0168 N80-15281
lls: High efficiency and radiation
                        25 p0170 N80-15554
7]
use and stability of flexibly
g-type flywheel systems
79-DET-71] 25 p0041 A80-15729
It whirl modes of flexibly mounted
ens
25 p0115 %80-11622 se and stability of flexibly
-type flywheel systems
25 p0116
dynamics of band-supported
                        25 p0116 N80-11623
ems
                        25 p0128 N80-12597
and natural frequencies of osite-material flywheels
                       25 p0176 N80-15622
pment for coal liquefaction
                        25 p0136 N80-13292
lies for large toroidal fusion
                        25 p0082 A80-19670
ergy conservation strategies in
als transport: U. S. Department of
her government agency policy-making
                        25 p0111 N80-11577
one Ga/1-x/Al/x/As-Si-photoelectric
th an illuminated n-region
                        25 p0044 A80-16626
Torus /EBT/ reactor 25 p0058 A80-17883
ctric and hybrid vehicle simulation
                        25 p0118 N80-11954
clanning and assessment for highway to alcohol fuels
                        25 p0168 N80-15281
eat transfer conditions in the
ents of the equatorial Indian Ocean
25 p0075 A80-19048
solid compound parabolic
 in series
                        25 p0024 A80-12749
```

udy of solar thermal power plant 25 p0024 A80-12753 oxide layer on the current voltage

Schottky barrier solar cells 25 p0026 A80-12772 force on the characteristics of

udy of MOS solar cells under

25 p0028 A80-12785

25 p0026 A80-12769 vestigation of various barrier chottky barrier and MOS solar cells 25 p0027 A80-12776

conceptual solar thermal electric ant on regional meteorological A numerical study 25 p0060 A80-18125

BIBERMAN, L. H.

Heat transfer in the channel of a high-power NHD generator 25 p0035 A80-14516

stabiliser

PERSONAL AUTHOR INDEX

BORELBURG, H.

BICKEL, T. C.	BLONGREN, G. B.
Coal liquefaction short residence time process research	Projected mechanism for thionyl chloride and
[SAND-79-1400] 25 p0133 N80-13272	sulphuryl chloride cathode reactions 25 p0012 A80-11856
BICKERTON, B. J.	BLONQUIST, C. A.
Review of tokamak experiments 25 p0034 180-13342	Underground pumped hydro storage: An overview [CONF-781046-1] 25 p0116 N80-11624
BIELIK, M.	[CONF-781046-1] 25 p0116 N80-11624 Turbomachinery options for an underground pumped
Nuclear fusion by cylindrical ion implosion	hydroelectric storage plant
25 p0058 A80-17874 BIPANO, W. J.	[CONF-790803-50] 25 p0177 N80-15629 BLOOMQUIST, C.
A photovoltaic power system in the remote African	Satellite Power System (SPS) preliminary societal
village of Tangaye, Upper Volta	assessment
[NASA-TM-79318] 25 p0123 N80-12552 BIGELOW, H. R.	[HCP/B4024-01/14] 25 p0101 N80-10657 BLOOMSTEB, C. H.
Analysis of potential implementation levels for	Methodology for identifying materials constraints
waste heat utilization in the nuclear power	to implementation of solar energy technologies
industry [ORNL/TM-63-2] 25 p0177 N80-15625	[PNL-2711] 25 p0098 N80-10625 BLURTON, R. P.
BINDER, A. E.	The performance of molten-carbonate fuel cells
Effects of metallurgical microstructure of	25 p0011 A80-11851
armatures on compressed magnetic field generators [SAND-79-0890C] 25 p0137 N80-13375	Commercial applications of molten carbonate fuel cell systems
BIRD, S. P.	25 p0016 A80-11974
SOLSTEP - A computer model for predicting the	Commercial application of molten carbonate fuel
thermodynamic and economic performance of solar thermal power plants	cell system [CONF-790213-4] 25 p0123 N80-12557
[ASME PAPER 79-WA/SOL-12] 25 p0068 A80-18579	Puel cell option
BIRT, D.	[CONF-7809137-1] 25 p0158 N80-14523
The electrochemical characteristics of iron sulphide in immobilized salt electrolytes	BOBBETT, R. Applications of fuel cells in transportation
25 p0013 A80-11862	[LA-UR-79-628] 25 p0159 N80-14526
BISANTZ, D. J.	BOCKRIS, J. O'H.
Small solar thermal electric power plants with early commercial potential	The photo-electrochemical production of C-C bonds from carbon dioxide
[ASME PAPER 79-WA/SOL-9] 25 p0069 A80-18586	25 p0004 A80-10848
BISHOP, A. B.	BODNER, S. B.
Energy development vs water quality in the upper Colorado and upper Missouri River Basins	Inertial confinement fusion at NRL 25 p0056 A80-17861
[LA-7497-MS] 25 p0117 N80-11641	BORER, K. W.
BISHOP, C. J. Systems Analysis and testing (SAT) program	The physics and chemistry of solar cells
[SERI/PR-35-313] 25 p0124 N80-12565	BOEHM, R. 25 p0073 A80-18751
BISHOP, W. S.	Simulation of solar-assisted urban sewage digestion
Analysis of remote site energy storage and generation systems	[ASME PAPER 79-WA/SOL-36] 25 p0065 A80-18556 BOEHN, R. P.
[AD-A074869] 25 p0156 N80-14504	Computer simulation results for planar reflectors
BJORNSTAD, D. J. Regional economic/demographic projections for	and flat plate solar collectors
energy policy analysis	[ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559 BOES, R. C.
[ORNL/TH-6668] 25 p0 128 N80-12599	Insolation modeling overview
BLACK, R. A. Commercialization strategy report for hydrothermal	25 p0020 A80-12428 Status of the US Department of Energy photovoltaic
electric and direct heat application	concentrator development project
[TID-28840-DRAFT] 25 p0157 N80-14508	[SAND-78-2187C] 25 p0172 N80-15578
BLADEN, P. G. A home-size solar-powered engine for cooling	BOGDANKEVICH, L. S. Relativistic high-current microwave plasma
systems of generation of electricity	electronics
[ASME PAPER 79-WA/SOL-34] 25 p0066 A80-18562	25 p0083 A80-19847
BLAIR, P. Analysis of resource pricing for geothermal	BOHM, M. S. Thermoelectric ocean thermal energy conversion
electric power production	[SERI/TP-35-254] 25 p0 124 N80-12564
25 p0088 A80-20889	BOKHAN, A. H.
BLAKE, T. R. Computer modeling of coal gasification reactors	Improving the reliability of capacitance batteries in power grids with higher-harmonic sources
25 p0087 A80-20882	25 p0008 A80-11671
Dynamic modeling of H2S clean-up processes 25 p0088 A80-20885	BOL, K. Volt-second consumption during the start-up phase
BLANCHETT, R. S.	of PLT
Fuel utilization in residences	25 p0040 A80-15532
[EPRI-EA-894] 25 p0175 N80-15604 BLAUNSTEIN, R-	BOLIN, B: Global ecology and man
Commercialization strategy report for small wind	25 p0131 N80-12668
systems [TID-28844-DRAFT] 25 p0161 N80-14543	BOLING, N. L.
Commercialization strategy report for large wind	Determination of the technical and economic feasibility of luminescent solar concentrators
systems	[SAND-79-7005] 25 p0100 N80-10650
[TID-28843-DRAFI] 25 p0161 N80-14544 BLAZEK, C. F.	BOLTON, J. R.
High-BTU coal gasification processes	Photochemical conversion and storage of solar energy 25 p0009 A80-11829
[ANL/CES/TE-79-2] 25 p0 150 N80-14263	BONRLBURG, H.
BLEWER, R. S.  Spatial and depth distribution of deuterium,	Energy storage systems for automobile propulsion, 1978 study. 1: Overview and findings
oxygen, and limiter materials on the liner of	[UCRL-52553-VOL-1] 25 p0105 N80-10970
TFR 400	Energy storage system for automobile propulsion,
25 p0082 A80-19682	1978 study. 2: Detailed report [UCRL-52553-VOL-2] 25 p0181 N80-15995
	5 - 20 - 101 of 51

		•	
BONKAMP, D. H.	MUD program	BRADY, J.	
Technical support for open-cycle [ANL/MHD-78-11]	25 p0181 N80-15942	MARKAL: A multiperiod linear-pro for energy systems analysis (BM	
BOND, G. H.	-	[BNL-26390]	25 p0178 N80-15634
Design considerations for a propo vacuum solar annular receiver	sed passive	BRANDHORST, H. W., JR.	
[SAND-78-0982]	25 p0111 N80-11582	Space solar cells: High efficien damage	cy and radiation
BONES, R. J.	<u>-</u>	[NASA-TM-81387]	25 p0170 N80-15554
Current collectors for sodium-sul	phur batteries 25 p0013 A80-11867	BRANDON, C. A.	
BONNÉVIRE, B.	25 pools 200-1100/	Energy conservation through point with high temperature hyperfilt	
Boundary layer analysis of cold-b		[PE-299183/4]	25 p0180 N80-15688
BOOK, D. L.	25 p0058 A80-17877	BRANOVER, H.	
Optimization of stabilized implod	ing liner fusion	Solar-powered liquid-metal MHD po [ASME PAPER 79-WA/SOL-22]	25 p0065 A80-18554
reactors		BRATIS, J. C.	
BOOTH, D. C.	25 p0079 A80-19593	Assessment of Stirling engine pot	ential in total
Stabilized CVD amorphous silicon		and integrated energy systems [ANL/ES-76]	25 p0140 N80-13636
temperature photothermal solar		BRAUNSTRIN, B.	
BORDINA, N. M.	25 p0087 A80-20722	Non-sintered plastic-bonded nicke electrodes with open structure	el oxide
Photoconverter with bilateral sen		electrochemical performance	and their
BORGESON, N. S.	25 p0044 A80-16625	TRIE R R	25 p0009 A80-11839
Mission analysis for the Pederal	fuels from	BRAY, R. E. Solar-climatic statistical study.	Summary ropert
biomass program. Volume 3: Pe		volume 1	sammary report,
availability [SAN-0115-T1]	25 p0168 N80-15276	[HCP/T4016-1]	25 p0132 N80-12707
BORIS, J. P.		Solar-climactic statistical study [HCP/T4016-01/2]	25 p0149 N80-13747
Inertial confinement fusion at NR		BRECHEISEN, A. N.	_
BORRASS, K.	25 p0056 A80-17861	Surface water quality parameters	for monitoring
SISYPUS - A simulation model for	systematic	oil shale development [PB-297984/7]	25 p0153 N80-14470
analyses of fusion power plants		BREELLE, Y.	
BORTON, D. N.	25 p0079 A80-19597	Technico economic study of the us methanol for road transport	e of hydrogen and
Heat transfer analysis of receive	rs for a solar	meendad for road transport	25 p0042 A80-15993
concentrating collector [ASME PAPER 79-WA/SOL-20]	25 -0065 300 40550	BREEV, V. V.	
BOSE, D. N.	25 p0065 A80-18558	Some problems with variable opera generator	tion of an MHD
Gals-electrolyte photovoltaic cel			25 p0035 A80-14530
BOSNJAKOVIC, F.	25 p0026 A80-12774	BREHM, No Fo. Materials compatibility in liquid	
Solar collectors as energy conver	ters		25 p0119 N80-12147
BOUTBIT, C.	25 p0036 A80-14670	BREIZMAN, B. N.	<del>-</del>
Copper diffusion and photovoltaic	mechanisms at	Investigation of plasma heating b relativistic electron beams	y powerful
Cu-CdS contact		•	25 p0056 A80-17857
BOWNAH, B. R.	25 p0033 A80-13204	BRETT, C. B.	:
The impact of LNG spills on the e	nvironment: A	A solar energy system with annual [ASME PAPER 79-WA/SOL-30]	
comparison of dispersion models	and experimental	Heat pump centered integrated com	
[UCRL-81812]	25 p0103 N80-10688	systems: Systems development [ANL/ICES-TM-30]	25 p0173 N80-15588
Numerical modeling of LNG spill p	henomena	BRIGGS, R. W.	<del>-</del>
[UCRL-82031] BOWNAN, M. G.	25 p0130 N80-12625	Management of coal preparation fi	ne wastes without
LASL thermochemical hydrogen prog	ram status on	disposal ponds [PB-299100/8]	25 p0180 N80-15691
October 31, 1978		BRIGHT, R.	
[LA-UR-78-2895] BOWSER, R. P.	25 p0120 N80-12197	The marginal cost of electricity	used as backup
Construction and initial operatio	n of the	for solar hot water systems - A	25 p0021 A80-12436
Miamisburg salt-gradient solar [MLM-2626-OP]	pond 25 p0161 N80-14541	BRINER, W. P.	
BOWYER, J. M.	25 po 101 Meo-14541	Pelletized wood /Woodex/ - Applic potential	ations and
The effects of regional insolatio			25 p0017 A80-11981
upon advanced solar thermal ele performance and energy costs	ctric power plant	BRITT, B. J. A cesium TELEC experiment at Lewi	s Possanak Conton
[ASME PAPER 79-WA/SOL-15]	25 p0069 A80-18588	[NASA-CR-159729]	25 p0151 N80-14386
BOZLEE, C. O. Calculated and measured efficienc	ios of thin-film	BRO, P.	<del>-</del>
shallow-homojunction GaAs solar		Heat generation in Li/SOC12 cells	25 p0012 A80-11855
substrates	25 -0020 200 45484	BRODD, R. J.	
BRACKBILL, J. U.	25 p0039 A80-15141	Projected mechanism for thionyl c	
Recent developments in linear the	ta-pinch and	sulphuryl chloride cathode reac	25 p0012 A80-11856
laser-heated solenoid research		BRODRICK, J. R.	_
BRADLEY, J. E.	25 p0055 A80-17825	Energy conservation in the US eco increased recycle of obsolete s	
Heating, confinement and fluctuat	ions in the CLEO	[C00-2893-10]	25 p0 159. N80-14524
stellarator	25 p0055 A80-17826	BROBEL, J. H.	-
BRADSHAW, T.	_	Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic	concentrator
Energy system in the Far West: I	mpacts of the	power system for load-center ap	plications with
National Energy Act of 1978 [UCRL-52754]	25 p0140 N80-13638	feedback into the utility grid [DOB/CS-34267/1]	
•		[ 202/ 00 0 1201/ 1]	25 p0145 N80-13688

PERSONAL AUTHOR INDEX BURNS, P.

ROHL, E. C.	
	BRUMBER, S. B.
Operational experience with drain-down solar systems	Corrosion protection of solar-collector heat
[IS-M-166] 25 p0125 N80-12576	exchangers with electrochemically deposited films
RONORL, G.	[C00-4297-1] 25 p0171 N80-15569
Hydrogen /Hydride/-air secondary battery	BRYANT, R. S.
25 p0011 A80-11848	Construction and initial operation of the
ROOK, J. W.	Miamisburg salt-gradient solar pond
The jet membrane process for uranium separation	[MLM-2626-OP] 25 p0161 N80-14541
and enrichment	BUBENKO, J. A.
[RE-586] 25 p0091 N80-10329	An optimization model for overall urban energy
ROOKS, H.	planning
United States energy alternatives to 2010 and	25 p0038 A80-14844
beyond - The CONAES study	BUCCIARELLI, L. L., JR.
25 p0008 A80-11827	Power loss in photovoltaic arrays due to mismatch
ROOKS, J.	in cell characteristics
Impact of technology and maintainability on	25 p0028 A80-12815
economic aspects of tokamak power plants	BUCHANAN, D. L.
25 p0 059 A80-17884	A review of the economics of selected passive and
BROOKS, J. N.	hybrid systems
Power supply requirements for a tokamak fusion reactor	[SERI/TP-61-144] 25 p0161 N80-14547
	BUCHRNAUER, C. J.
25 p0003 A80-10474	LASL toroidal reversed-field pinch programme
Power supply requirements for a tokamak fusion	25 p0054 A80-17809
reactor	BUCHLIN, J. M.
[ANL/FPF/TM-119] 25 p0104 N80-10918	Application of packed beds to energy storage use
BROOKS, W. P.	of latent heat of fusion
PULSAR: An inductive pulse power source	25 p0121 N80-12353
[SAND-79-1246C] 25 p0177 N80-15627	BUCK, W. L.
BROSSEAU, J. D.	Status of development, energy and economics
Microbial hydrogen production from replemishable	aspects of alternative technologies
resources	[CONF-790371-1] 25 p0145 N80-13689
25 p0032 A80-13197 BROUSSELY, M.	BUCKBER, J. H.
	Piscal year 1978 experiences at TVA's Widows Creek
Lead oxides-lithium cells 25 p0012 A80-11859	unit 8 limestone scrubber
BROWN, D. H.	[ASME PAPER 79-WA/APC-10] 25 p0071 A80-18623
Techniques for evaluation of advanced cogeneration	BUDGE, T. R.
technologies	Residential heat loss mapping of Farmington, New
25 p0014 A80-11957	Mexico using airborne thermal scanning
PROWN, H.	25 p0084 A80-20242
Renewable energy prospects; Proceedings of the	BUEKENS, A. G.
Conference on Non-Fossil Fuel and Non-Nuclear	Experimental techniques and mathematical models in
Fuel Energy Strategies, Honolulu, Hawaii,	the study of waste pyrolysis and gasification
January 9-12, 1979	BUENDE, R. 25 p0001 A80-10028
25 p0047 A80-17126	SISYFUS - A simulation model for systematic
Can alternative energy resources be brought into	Provide a Simulacion model for Systematic
	analyses of fusion power plants
large-scale use in the United States by the year	25 p0079 A80-19597
large-scale use in the United States by the year 2000	25 p0079 A80-19597
large-scale use in the United States by the year 2000 25 p0048 A80-17128	25 p0079 A80-19597 BUFFA, A. Studies on plasma formation, relaxation and
large-scale use in the United States by the year 2000 25 p0048 A80-17128	25 p0079 A80-19597 BUFPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch
large-scale use in the United States by the year 2000 25 p0048 A80-17128	BUPPA, A.  Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0079 A80-19597  Compared to the point of
large-scale use in the United States by the year 2000 25 p0048 A80-17128  NROWN, K. C.  Near-term prospects for solar industrial process heat	Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0079 A80-19597  BUNEMAN, O.
large-scale use in the United States by the year 2000 25 p0048 A80-17128 ROWN, K. C.  Near-term prospects for solar industrial process heat 25 p0018 A80-11988	Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O  The effect of current shear on the tearing
large-scale use in the United States by the year 2000 25 p0048 A80-17128 ROWN, K. C. Near-term prospects for solar industrial process heat 25 p0018 A80-11988	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch 25 p0054 A80-17811 BUNEMAN, O. The effect of current shear on the tearing instability
large-scale use in the United States by the year 2000 25 p0048 A80-17128 ROWN, K. C.  Near-term prospects for solar industrial process heat 25 p0018 A80-11988	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch 25 p0054 A80-17811 BUNEMAN, O. The effect of current shear on the tearing instability 25 p0059 A80-18086
large-scale use in the United States by the year 2000 25 p0048 A80-17128 ROWN, K. C.  Near-term prospects for solar industrial process heat 25 p0018 A80-11988 ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822] 25 p0149 N80-13754	BUPPA, A.  Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O.  The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAROV, A. V.
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons  [AD-A073822]  25 p0149 N80-13754	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch 25 p0054 A80-17811 BUNEMAN, O. The effect of current shear on the tearing instability 25 p0059 A80-18086 BURDAROV, A. V. Investigation of plasma heating by powerful
large-scale use in the United States by the year 2000 25 p0048 A80-17128 ROWN, K. C.  Near-term prospects for solar industrial process heat 25 p0018 A80-11988 ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822] 25 p0149 N80-13754	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch 25 p0054 A80-17811 BUNEMAN, O. The effect of current shear on the tearing instability 25 p0059 A80-18086 BUNDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams
large-scale use in the United States by the year 2000 25 p0048 A80-17128 AROWN, K. C.  Near-term prospects for solar industrial process heat 25 p0018 A80-11988 AROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822] 25 p0149 N80-13754 AROWN, M. C.  Hot dry rock geothermal energy development program	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch 25 p0054 A80-17811 BUNEMAN, O. The effect of current shear on the tearing instability 25 p0059 A80-18086 BURDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams 25 p0056 A80-17857
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  25 p0144 N80-13673	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch 25 p0054 A80-17811 BUNEMAN, O. The effect of current shear on the tearing instability 25 p0059 A80-18086 BURDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams 25 p0056 A80-17857
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  25 p0144 N80-13673  ROWN, P.  Commercialization strategy report for electric and hybrid vehicles	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch 25 p0054 A80-17811 BUNEMAN, O. The effect of current shear on the tearing instability 25 p0059 A80-18086 BURDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams 25 p0056 A80-17857 BURDEN, R. A. Ignitron switching problems associated with a
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  [LA-7807-HDR]  ROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  25 p0166 N80-14972	BUPPA, A.  Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O.  The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAROV, A. V.  Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A.  Ignitron switching problems associated with a large reversed field pinch experiment
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  25 p0144 N80-13673  ROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  25 p0166 N80-14972	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch 25 p0054 A80-17811 BUNEMAN, O. The effect of current shear on the tearing instability 25 p0059 A80-18086 BURDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams 25 p0056 A80-17857 BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment 25 p0081 A80-19629 BURESI, E.
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  25 p0144 N80-13673  ROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  ENOWH, P. W.  Fundamental economic issues in the development of	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch 25 p0054 A80-17811 BUNEMAN, O. The effect of current shear on the tearing instability 25 p0059 A80-18086 BURDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams 25 p0056 A80-17857 BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment 25 p0081 A80-19629 BURESI, E.
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-RDR]  25 p0144 N80-13673  ROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  25 p0166 N80-14972  ROWH, P. W.  Pundamental economic issues in the development of small-scale hydro	BUPPA, A.  Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O.  The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAKOV, A. V.  Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A.  Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-RDR]  25 p0144 N80-13673  ROWN, P. C.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  ROWN, P. W.  Fundamental economic issues in the development of small-scale hydro [DOZ/RA-23-216.00.0-02]  25 p0143 N80-13667	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch 25 p0054 A80-17811 BUNEMAN, O. The effect of current shear on the tearing instability 25 p0059 A80-18086 BURDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams 25 p0056 A80-17857 BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment 25 p0081 A80-19629 BURESI, B. Work on laser interaction and implosion at Centre d'Etudes de Limeil 25 p0057 A80-17863
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  25 p0144 N80-13673  ROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  PUNDAMP, P. W.  Fundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  ROWN, R.	BUPPA, A.  Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O.  The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAROV, A. V.  Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A.  Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, B.  Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-RDR]  25 p0144 N80-13673  ROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  25 p0166 N80-14972  ROWH, P. W.  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  ROWN, R.  Realth and enviromental effects of coal	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAKOV, A. V Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, B Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N Ranking tires using a transient speed-time cycle
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  ROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  ROWN, P. W.  Fundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNENAN, O. The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, E. Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9]  25 p0108 N80-11487
large-scale use in the United States by the year 2000  25 p0048 A80-17128  1ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  1ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  1ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  25 p0144 N80-13673  1ROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  1ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports	BUPPA, A.  Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O.  The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAROV, A. V.  Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A.  Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, B.  Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N.  Ranking tires using a transient speed-time cycle  [PB-297756/9]  BURN, D.
large-scale use in the United States by the year 2000  25 p0048 A80-17128  BROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  BROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  BROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-BDR]  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  BROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  25 p0104 N80-10701	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  BUNEMAN, Co. The effect of current shear on the tearing instability  BURDAKOV, A. Ve. Investigation of plasma heating by powerful relativistic electron heams  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment  25 p0056 A80-17857  BURESI, B. Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D. The semiconductor-insulator-semiconductor/indium
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  ROWN, P. W.  Fundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  ROWN, R.  Health and environmental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  ROWN, R. A.	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O. The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, E. Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D. The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell -
large-scale use in the United States by the year 2000  25 p0048 A80-17128  RROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  RROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  RROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  25 p0144 N80-13673  RROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  RROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  ROWN, R. A.  Pilot scale evaluation of NOX combustion control	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O. The effect of current shear on the tearing instability 25 p0059 A80-18086  BURDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams 25 p0056 A80-17857  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment 25 p0081 A80-19629  BURESI, B. Work on laser interaction and implosion at Centre d'Etudes de Limeil 25 p0057 A80-17863  BURGESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D. The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-RDR]  25 p0144 N80-13673  ROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  25 p0166 N80-14972  ROWH, P. W.  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  BUNEMAN, O The effect of current shear on the tearing instability  BURDAKOV, A. V Investigation of plasma heating by powerful relativistic electron heams  BURDEN, R. A Ignitron switching problems associated with a large reversed field pinch experiment  25 p0056 A80-17857  BURDEN, R. A  Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, R  Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N  Ranking tires using a transient speed-time cycle  [PB-297756/9]  BURK, D The semiconductor-insulator-semiconductor /indium tin oxide on silicom/ solar cell - Characteristics and loss mechanisms  25 p0006 A80-11368
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-RDR]  25 p0144 N80-13673  ROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOZ/RA-23-216.00.0-02]  ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  ROWN, R. A.  Pilot scale evaluation of Nox combustion control for pulverized coal, phase 2 [PB-299325/1]  25 p0180 N80-15687	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O. The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, B. Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9]  EURR, D. The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms  25 p0006 A80-11368
large-scale use in the United States by the year 2000  25 p0048 A80-17128  RROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  RROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  RROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  25 p0144 N80-13673  RROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  ROWN, R.  Health and environmental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2 [PB-299325/1]  RROCE, R. F.	BUPPA, A.  Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O.  The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAROV, A. V.  Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A.  Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, B.  Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N.  Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D.  The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms  25 p0006 A80-11368  BURKE, A. R.  Studies of directly absorbing fluids for
large-scale use in the United States by the year 2000  25 p0048 A80-17128  BROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  BROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  BROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-BDR]  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  ENOWN, P.  Fundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  BROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  BROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2  [PB-299325/1]  BROCE, R. P.  Seismic refraction investigation of the Salton Sea	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  BUNEMAN, C.  The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAKOV, A. V.  Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A.  Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, B.  Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N.  Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D.  The semiconductor-insulator-semiconductor /indium tin oxide on silicom/ solar cell - Characteristics and loss mechanisms  25 p0006 A80-11368  BURKE, A. R.  Studies of directly absorbing fluids for mid-temperature solar thermal applications
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-RDR]  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOZ/RA-23-216.00.0-02]  ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  ROWN, R. A.  Pilot scale evaluation of Nox combustion control for pulverized coal, phase 2 [PB-293325/1]  ROWN, R. P.  Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O. The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAKOV, A. V. Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, E. Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D. The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms  25 p0006 A80-11368  BURKE, A. R. Studies of directly absorbing fluids for mid-temperature solar thermal applications [MLB-2625-OP]  25 p0160 N80-14540
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  25 p0144 N80-13673  ROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2 [PB-29325/1]  25 p0180 N80-15687  ROCE, R. P.  Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3]  25 p0181 N80-11711	BUFFA, A.  Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O.  The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAROV, A. V.  Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A.  Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, E.  Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N.  Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D.  The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms  25 p0006 A80-11368  BURKE, A. R.  Studies of directly absorbing fluids for mid-temperature solar thermal applications [MLB-2625-OP]  BURKANDT, L. C.
large-scale use in the United States by the year 2000  25 p0048 A80-17128  BROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  BROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  BROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-BDR]  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  BROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  BROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2  [PB-29325/1]  Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3]  25 p0118 N80-11711	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  BUNEMAN, C. The effect of current shear on the tearing instability  BURDAKOV, A. V. Investigation of plasma heating by powerful relativistic electron heams  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment  25 p0056 A80-17857  BURDESI, E. Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D. The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms  25 p0006 A80-11368  BURKE, A. R. Studies of directly absorbing fluids for mid-temperature solar thermal applications [MLB-2625-0P]  BURKEARDT, L. C. LASI toroidal reversed-field pinch programme
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOZ/RA-23-216.00.0-02]  ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-29618/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2 [PB-29325/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2 [PB-29325/1]  Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3]  ROWN, R. Seesarch and evaluation of biomass	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O. The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, B. Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9]  BURR, D. The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms  25 p0006 A80-11368  BURKE, A. R. Studies of directly absorbing fluids for mid-temperature solar thermal applications [MLB-2625-OP]  BURKHARDT, L. C. LASL toroidal reversed-field pinch programme 25 p0054 A80-17809
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-HDR]  25 p0144 N80-13673  ROWN, P.  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2  [PB-299325/1]  25 p0180 N80-15687  ROCE, R. P.  Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3]  ROUBBBEG, R. J.  Research and evaluation of biomass resources/conversion/utilization systems	BUFFA, A.  Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O.  The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAROV, A. V.  Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A.  Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, E.  Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N.  Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D.  The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms  25 p0006 A80-11368  BURKE, A. R.  Studies of directly absorbing fluids for mid-temperature solar thermal applications [MLB-2625-0P]  BURKHARDT, L. C.  LASI toroidal reversed-field pinch programme  25 p0054 A80-17809  BURHASOV, A. S.
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-RDR]  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2 [PB-299325/1]  ROCE, R. P.  Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3]  25 p0118 N80-11711  ROBBERG, R. J.  Research and evaluation of biomass resources/conversion/utilization systems [market/experimental analysis for development of	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  BUNEMAN, C. The effect of current shear on the tearing instability  BURDAKOV, A. V. Investigation of plasma heating by powerful relativistic electron heams  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment  BURDESI, E. Work on laser interaction and implosion at Centre d'Etudes de Limeil  BURGESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D. The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms  BURKE, A. R. Studies of directly absorbing fluids for mid-temperature solar thermal applications [MLM-2625-OP]  BURKBARDT, L. C. LASI toroidal reversed-field pinch programme  25 p0054 A80-17809  BURMASOV, A. S. Investigation of plasma heating by powerful
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-RDR]  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOZ/RA-23-216.00.0-02]  ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-29618/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2 [PB-299325/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2 [PB-299325/1]  Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3]  ROWNBRG, R. J.  Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model)	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O. The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAROV, A. V. Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, B. Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9] 25 p0108 N80-11487  BURK, D. The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms  25 p0006 A80-11368  BURKE, A. R. Studies of directly absorbing fluids for mid-temperature solar thermal applications [MLB-2625-OP]  BURKHARDY, L. C. LASL toroidal reversed-field pinch programme  25 p0054 A80-17809  BURMASOV, A. S. Investigation of plasma heating by powerful relativistic electron beams
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, H. C.  Hot dry rock geothermal energy development program [LA-7807-RDR]  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOE/RA-23-216.00.0-02]  ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-297618/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2 [PB-299325/1]  ROCE, R. P.  Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3]  25 p0118 N80-11711  ROBBERG, R. J.  Research and evaluation of biomass resources/conversion/utilization systems [market/experimental analysis for development of	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O. The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAKOV, A. V. Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, R. Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D. The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms  25 p0006 A80-11368  BURKE, A. R. Studies of directly absorbing fluids for mid-temperature solar thermal applications [MLB-265-0P]  BURKHARDT, L. C. LASI toroidal reversed-field pinch programme  25 p0054 A80-17809  BURMASOV, A. S. Investigation of plasma heating by powerful relativistic electron beams
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-RDR]  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOZ/RA-23-216.00.0-02]  ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-29618/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2 [PB-299325/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2 [PB-299325/1]  Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3]  ROWNBRG, R. J.  Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model)	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, C. The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAKOV, A. V. Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, B. Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D. The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms  BURKE, A. R. Studies of directly absorbing fluids for mid-temperature solar thermal applications [MLM-2625-OP]  BURKHARDT, L. C. LASI toroidal reversed-field pinch programme  25 p0054 A80-17809  BURMASOV, A. S. Investigation of plasma heating by powerful relativistic electron beams
large-scale use in the United States by the year 2000  25 p0048 A80-17128  ROWN, K. C.  Near-term prospects for solar industrial process heat  25 p0018 A80-11988  ROWN, L. R.  The analysis of sediment samples for hydrocarbons [AD-A073822]  25 p0149 N80-13754  ROWN, M. C.  Hot dry rock geothermal energy development program [LA-7807-RDR]  Commercialization strategy report for electric and hybrid vehicles [TID-28858-DRAFT]  Pundamental economic issues in the development of small-scale hydro [DOZ/RA-23-216.00.0-02]  ROWN, R.  Health and enviromental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [PB-29618/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2 [PB-299325/1]  ROWN, R. A.  Pilot scale evaluation of NOx combustion control for pulverized coal, phase 2 [PB-299325/1]  Seismic refraction investigation of the Salton Sea geothermal area, Imperial Valley, California [PB-296547/3]  ROWNBRG, R. J.  Research and evaluation of biomass resources/conversion/utilization systems (market/experimental analysis for development of a data base for a fuels from biomass model)	BUPPA, A4 Studies on plasma formation, relaxation and heating in a reversed-field pinch  25 p0054 A80-17811  BUNEMAN, O. The effect of current shear on the tearing instability  25 p0059 A80-18086  BURDAKOV, A. V. Investigation of plasma heating by powerful relativistic electron heams  25 p0056 A80-17857  BURDEN, R. A. Ignitron switching problems associated with a large reversed field pinch experiment  25 p0081 A80-19629  BURESI, R. Work on laser interaction and implosion at Centre d'Etudes de Limeil  25 p0057 A80-17863  BURGESON, R. N. Ranking tires using a transient speed-time cycle [PB-297756/9]  BURK, D. The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell - Characteristics and loss mechanisms  25 p0006 A80-11368  BURKE, A. R. Studies of directly absorbing fluids for mid-temperature solar thermal applications [MLB-265-0P]  BURKHARDT, L. C. LASI toroidal reversed-field pinch programme  25 p0054 A80-17809  BURMASOV, A. S. Investigation of plasma heating by powerful relativistic electron beams

Laboratory evaluation of two laser fluorosensor

CAPELLE, G. A.

CASSOU. A. M.

levels

CASTALDINI, C.

systems

Preliminary analysis of a total s	olar heating system
[COO-4546-4] BURSELL, H.	25 p0101 N80-10653
Otility fuel cells for Sweden	25 -0011 100 11052
BORT, J.	25 p0011 A80-11852
Results from the Divertor Injecti Experiment /DITE/	on Tokamak
	25 p0054 A80-17754
BURTON, R. L. Optimization of stabilized implod	ing liner fusion
reactors	25 p0079 A80-19593
BUSBY, J. P.	
Research on the dynamics of band- flywheel systems	supported .
[SAND-78-7074] BUSHBELL, R. H.	25 p0128 N80-12597
Calculation of climatic solar hea	
BUSSAC, M. N.	25 p0029 A80-12820
Low-aspect-ratio limit of the tor The spheromak	oidal reactor -
-	25 p0058 A80-17876
BUTLER, G. D. Current U. S. petroleum situation	and short-term
supply/demand outlook [DOE/EIA-0184/5]	25 p0138 N80-13607
BUTLER, H. A.	-
Principles of photoelectrochemica conversion	1 solar energy
	25 p0074 A80-18990
C	
CALABEK, H.	
High-efficiency alkaline accumula mass treated with oxalic acid	tor with cadmium
	25 p0010 A80-11842
CALAWA, A. R. Efficient shallow-homojunction Ga.	As solar cells by
molecular beam epitaxy	25 p0035 480-13986
CALDWELL, R. L.	-
West Coast Forum on Appropriate To [PB-298986/1]	echnology 25 p0166 N80-14962
CALIA, V.  The jet membrane process for uran.	ium secaration
and enrichment	-
[RE-586] CALM, J. M.	25 p0091 N80-10329
DOE heat pump centered integrated systems project	community energy
[CONF-790362-1]	25 p0112 N80-11586
Community heating and cooling sys [CONF-790446-6]	25 p0147 N80-13706
CALVERT, S. Effects of conditioning agents on	emissions from
coal-fired boilers: Test report [PB-299191/7]	t_no. 1
Effects of conditioning agents on	
coal-fired boilers: Test repor [PB-299192/5]	t no. 2 25 p0165 N80-14591
CALVIN, H. Petroleum plantations and synthet:	-
	25 p0049 A80-17137
CALZAPERRI, G. Conversion of radiant energy into	chemical energy
[UCBL-TEANS-11427] CAMABA, B. H.	25 p0114 N80-11609
The performance of molten-carbona	
CAMPBELL, P. H.	25 p0011 A80-11851
The KMSF laser fusion programme	25 m0.056 200-17040
CAMPBELL, R.	25 p0056 A80-17860
Soviet energy balances [RAND/E-2257-DOE]	25 p0099 N80-10634
CAMPBELL, R. A. Coal-shale interface detection sys	-
[NASA-CASE-MFS-23720-2]	stem 25 p0152 N80-14423
CANNON, D. G.  Preliminary test results of a flig	ght management
algorithm for fuel conservative time based metered traffic envi	descents in a
[NASA-TM-80194]	25 p0150 N80-14114

```
25 p0031 A80-1296
CAPUTO, B.
    Remote sensing of LNG spill vapor dispersion using
     . Baman LIDAR
       [UCRL-13984]
                                                  25 p0103 N80-1068
CABLEY, W.
    Comparative study of solar optics for paraboloidal
       concentrators
[ASME PAPER 79-WA/SOL-8]
                                                  25 p0066 A80-1856
CARLING, A.
    RLING, A.

Effects of energy policy on industry

25 p0129 N80-1260
CARLIEG, R. W.
    Dissociation pressure measurements on salts
       proposed for thermochemical energy storage
[SAND-79-8033] 25 p0160 N80-1453:
CARLSON, G. A.
    Tandem mirror reactors
                                                  25 p0059 A80-1788
CARLSON. R. C.
    Economic impacts of energy conservation and
       renewable energy sources
       [UCRL-15087]
                                                  25 p0177 N80-1563
CARLSON, T. C. G.
OTEC - A comprehensive energy analysis
                                                  25 p0085 A80-2045
CARLSSON, B.
    An incongruent heat-of-fusion system - CaCl2-6H2O
- made congruent through modification of the
chemical composition of the system
                                                  25 p0029 A80-1282
CARMICHARL, D. C.

Photovoltaic concentrator application experiment.

Phase 1: A 150 kW photovoltaic concentrator

power system for load-center applications with

foodback into the utility grid
       feedback into the utility grid
       [ DOE/CS-34267/1]
                                                  25 p0145 N80-13688
    Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska
[NASA-CR-162534] 25 p0154_N80-1
                                                  25 p0154_N80-14483
CARPETIS, C.
    Hydrogen storage by use of cryoadsorbents in
       comparison to alternatives
                                                  25 g0042 A80-15992
CARRATELLI, B. P.
    A theoretical study of laminar free convection in
1-D solar induced flows
                                                  25 p0005 A80-11337
    The policy of the European Economic Community in
the field of energy savings
                                                  25 p0050 A80-17223
CARROLL, W. L
    Thermal performance of buildings and building
      envelope systems: An annotated bibliography
[LBL-8925] 25 p0145 #80-13680
CASAGRANDE, D. J.

The distribution of sulfur and organic matter in
       various fractions of peat - Origins of sulfur in
                                                  25 p0074 A80-18833
CASKEY, B. C. Solar mechanical energy storage project 25 p0127 N80-12590
    [SAMD-78-1982c] 25 p0127 N80-1
Solar mechanical energy storage program overview
      and systems analysis results [SAND-79-1642C]
                                                  25 p0178 N80-15637
CASSANOVA, R. A.
    Southeastern forum on appropriate technology
[PB-298796/4] 25 p0118 N80-11965
CASSEL, R.
    Electrical power system to TFTR poloidal coils
                                                  25 p0080 A80-19620
CASSEL, T.
Analysis of resource pricing for geothermal
                                                  25 p0088 480-20889
```

Properties of gases and petroleum liquids derived from terrestrial kerogen at various maturation

TALDINI, C.
Technical assessment of thermal DeNOx process

[ 100-207017/4] 25 p0117 N80-11656

25 p0073 A80-18832

PERSONAL AUTHOR INDEX

CASTILLO, R.	CHANDRAN, G.
Calculations of inertial confinement fusion gains	Development of space quality silicon solar cells
using a collective model for reheat.	at B.A.R.C.
bremsstrahlung and fuel depletion for highly efficient electrodynamic laser compressions	25 p0025 A80-12762
25 p0058 A80-17875	CHANG, K. K.
CASTLE, J.	An optimization formulation for solar hot water systems
SERAPH implementation plans	[ASME PAPER 79-WA/SOL-42] 25 p0068 A80-18578
[SERI/RE-34-152] 25 p0172 N80-15570	CHAPMAN, G. H.
ATALDI, R.	The A-I/1-y/B-I/y/C-IIID-VI/2x/E-VI2/1-x/
Methods for regional assessment of geothermal resources	pentenary alloy system and its application to
25 p0075 A80-19202	photovoltaic solar energy conversion
Assessment of geothermal potential of central and	CHAPMAN, R. L. 25 p0046 A80-16786
southern Tuscany	Efficient shallow-homojunction GaAs solar cells by
25 p0075 A80-19203	molecular beam epitaxy
Lead batteries, volume 2. Citations from the	25 p0035 A80-13986
engineering index data base	CHARATIS, G.
[NTIS/PS-77/0634] 25 p0103 N80-10681	The KMSP laser fusion programme 25 p0056 A80-17860
ELATI, R.	CHARLTON, L. A.
Analysis of reservoir pressure and decline curves	High-beta tokamaks
in Serrazzano zone, Larderello geothermal field	25 p0054 A80-17789
25 p0075 A80-19204 Thermodynamic behaviour of the Bagnore geothermal	CHARTOCK, N. A.
field	Energy from the West: Energy resource development
25 p0075 A80-19205	systems report. Volume 1: Introduction and general social controls
ENA, R. J.	[PB-299177/6] 25 p0152 N80-14463
Laboratory coal gasifier facility	Energy from the West: Energy resource development
[UCEL-82602] 25 p0 106 N80-11245	systems report. Volume 2: Coal
Numerical computations in the design of compact	[PB-299178/4] 25 p0152 N80-14464
ignition experiments	Energy from the West: Energy resource development
25 p0078 A80-19589	systems report. Volume 3: 0il shale [PB-299179/2] 25 p0152 N80-14465
EREK, M.	Energy from the West: Energy resource development
High-efficiency alkaline accumulator with cadmium	systems report. Volume 4: Uranium
mass treated with oxalic acid	[PB-299180/0] 25 n0152 N80-14466
EPERLEY, P. H. 25 p0010 A80-11842	Energy from the West: Energy resource development
A pistonless Stirling engine - The traveling wave	systems report. Volume 5: Oil and natural gas [PB-299181/8] 25 p0152 N80-14467
heat engine	[PB-299181/8] 25 p0152 N80-14467 Energy from the West: Fnergy resource development
25 p0031 A80-13011	systems report. Volume 6: Geothermal
BRIHI, D. J.	[PB-299182/6] 25 p0152 N80-14468
Start up system for hydrogen generator used with	CHATEL, B.
an internal combustion engine [NASA-CASE-NPO-13849-1] 25 p0092 N80-10374	Some solar energy programmes in the United Nations
ERNANSKY, N. P.	system
A chromatographic peak profiling technique for	CHATILLON, Ca 25 p0006 A80-11342
interpretation and analysis of combustion	Thermodynamic and structural properties of
processes	LaNi/5-y/Aly compounds and their related hydrides
[AIAA PAPER 80-0284] 25 p0063 A80-18291 ERVENAN, H. B.	25 p0033 A80-13200
Physical modelling of the electromagnetic heating	CHATTOPADHYAYA, S. K.
of oil sand and other earth-type and biological	Temperature dependence of open-circuit photovoltage of a back-surface field
materials	semiconductor junction
25 p0020 A80-12311	25 p0087 A80-20727
HA, CS. An indirect ammonia-air fuel system	CHATCHVEDI, L.
25 p0C13 A80-11868	Use of geothermal energy for desalination in New
HAMBERLAIN, R. G.	Mexico: A feasibility study [PB-299271/7] 25 p0179 N80-15645
SAMICS: Input data preparation	CHAUVEL, A. 25 p0179 N80-15645
[NASA-CR-162421] 25 p0110 N80-11570	Technico economic study of the use of hydrogen and
HAMBERS, R. S.	methanol for road transport
Gasohol - Does it or doesn*t it produce positive net energy	25 p0042 A80-15993
25 p0034 A80-13863	CHEMBRIS, V. T.
HAN, S. T.	Change in rate of conducting-piston motion and the
Simulation of LNG vapor spread and dispersion by	characteristics of field-diffusion frocesses in a linear electromechanical energy converter
finite element methods	25 p0083 A80-20069
[UCRL-82441] 25 p0168 N80-15282	CHEN, P. C.
HANCE, M. S.  MHD stability limits on high-beta tokamaks	A thermodynamic assessment of OTEC open-cycle
25 p0054 A80-17797	power systems
HANDLER, G. I.	25 p0088 A80-20886 Land-based application of an OTEC open-cycle power
An overview of Controlled Thermonuclear Research	system
Division control and data acquisition computer	[CONP-790631-3] 25 p0 144 N80-13676
usage at the Los Alamos Scientific Laboratory	CHEN, P. M.
25 p0022 A80-12628	Analysis of convective heat loss from the receiver
Solar absorption spectra of PbS-Al and PbSe-Al	or solar power plants
systems	[ASME PAPER 79-WA/HT-36] 25 p0068 A80-18582 CHEN, H. C.
25 p0027 A80-12781	Research and evaluation of biomass
HANDRA, S.	resources/conversion/utilization systems
Review of the work done at C.E.E.R.I. on the	(market/experimental analysis for development of
development of single crystal silicon solar cells for use with concentrated light	a data base for a fuels from biomass model)
25 -0027 100 436 Firm concentrated flynt	[COO-5022-5] 25 p0172 N80-15576

CHEN, A. B.	CHOWDHURI, P
Drift wave stability and transport theory in fusion systems	Part 1: Analysis
25 p0056 A80-17846	[LA-UR-79-226] 25 p0151 N80-14346
Non-linear theory of collective processes in laser-pellet interaction and soliton generation	CHRISTAKIS, A. B. A policy-sensitive model of technology assessment
25 p0057 A80-17870	25 p0004 A80-11140
CHEN, J. H.  Regenerative process for desulfurization of high	CHRISTENSEN, M. N. Energy transition in California
temperature combustion and fuel gases	[UCRL-15003] 25 p0097 N80-10619
[BNL-50944] 25 p0134 880-13277	CHRISTER, L. Technology development for phosphoric acid fuel
CHEN, JB. Magnetic field design for a large tokawak	cell powerplant, phase 2
25 p0046 A80-16760	[NASA-CR-159705] 25 p0096 N80-10603
CHEN, T. L. Research on the dynamics of band-supported	CHRYSOCHOOS, J. Determination of the technical and economic
flywheel systems	feasibility of luminescent solar concentrators
[SAND-78-7074] 25 p0128 N80-12597 CHEN, T. L. C.	[SAND-79-7005] 25 p0100 N80-10650
Whirling response and stability of flexibly	LASL toroidal reversed-field pinch programme
mounted, ring-type flywheel systems [ASME PAPER 79-DET-71] 25 p0041 A80-15729	25 p0054 A80-17809
Lateral and tilt whirl modes of flexibly mounted	An indirect ammonia-air fuel system
flywheel systems	25 p0013 A80-11868
[SAND-78-7070] 25 p0115 N80-11622 Whirling response and stability of flexibly	CHUAH, Dd Gd Sd The ampere-hour efficiency of photovoltaic solar
mounted, ring-type flywheel systems	generators
[SAND-78-7073] 25 p0116 N80-11623 Critical speeds and natural frequencies of	25 p0047 A80-16999
rim-type composite-material flywheels	Design of a small thermochemical receiver for
[SAND-78-7049] 25 p0176 N80-15622 CHENG, C. F.	solar thermal power 25 p0005 A80-11338
Preliminary materials assessment in solar	CHURCH, R. L.
demonstration systems [ANL/EES-CP-30] 25 p0115 N80-11619	Simulation approach for base-line energy-siting analysis
CHERKASSKII, A. KH.	[CCNP-790459-22] 25 p0157 N80-1451
Evaluation of conductor mass and necessary voltage	CHUTE, F. S.  Physical modelling of the electromagnetic heating
level for large satellite solar arrays 25 p0036 A80-14595	of oil sand and other earth-type and biological
CHERNG, J.	materials
A new solar thermal electricity/cooling generation system	25 p0020 A80-1231 CISCATO, D.
[AIAA PAPER 80-0296] 25 p0063 A80-18300	The combined d.c. power supply for JET
CHRRMIAVSKY, E. A.  Dynamic energy system optimization model	25 p0080 A80-1962 CLARE, A. J.
[EPRI-EA-1079] 25 p0157 N80-14514	Recent advances in high temperature primary
CHERHOVA, K. S.  An engine fuel chemistry solution to the problem	lithium batteries 25 p0013 A80-1186
of jet fuel supplies	CLARK, G. J.
25 p0001 A80-10199 CHESTER, M. S.	Use of nuclear techniques in the characterization of chrome black solar absorber surfaces
Heat pipe cooled power magnetics	25 p0084 A80-2014
[NASA-CR-159659] 25 p0 136 N80-13362 CHRTTY, P. R. K.	CLARK, J. A. Survey and description of transport phenomena in
Enhanced power generation of GSS/4/PS by optical	packed-beds
solar reflectors 25 p0038 A80-14948	25 p0121 M80-1234 Heat storage and thermal transfer aspects of the
CHIANG, S. H.	dynamic behaviour of a packed bed
Photosensitization mechanisms for energy storing	25 p0121 N80-1234
isomerizations [AD-A074968] 25 p0156 N80° 14502	CLARK, J. S. Status of the DOE/NASA critical gas turbine
CHIANG, SH.	research and technology project [NASA-TM-79307] 25 p0155 N80-1449
Energy storage in organic photoisomers 25 p0072 A80-18747	[NASA-TM-79307] 25 p0155 N80-1449 CLARK, R. G.
CHILD, J.	Calculations of inertial confinement fusion gains
Energy demand in the developing countries [DOE/EIA-0183/10] 25 p0177 N80-15631	using a collective model for reheat, bremsstrahlung and fuel depletion for highly
CHILDS, J.	efficient electrodynamic laser compressions
Assessment of the applicability of the national fire weather data library to wind energy analyses	25 p0058 A80-1787
[PNL-2538] 25 p0165 N80-14655	Batteries for specific solar applications
CHILBNSKAS, A. A. Lithium/iron sulfide batteries for electric vehicles	[SAND-79-1428C] 25 p0124 N80-1255
[CONF-781006-2] 25 p0175 N80-15611	Testing of three installed solar domestic water
CHIOU, J. P. Noniterative solution of heat transfer equation of	heaters 25 p0025 A80-1275
fluid flow in solar collector	CLARK, W. H. H.
[ASME PAPER 79-WA/SOL-24] 25 p0068 A80-18577	Results from the Divertor Injection Tokamak Experiment /DITE/
CHIRIKOV, B. V. Transverse particle losses in axially asymmetrical	25 p0054 A80-1775
open traps	CLARKE, V.
25 p0055 A80-17840 CHIU, W. S.	A high performance porous flat-plate solar collecto 25 p0021 A80-1243
Sintered silicon nitrode recuperator fabrication	CLAYTON, R. N. Small solar thermal electric power plants with
[NASA-CR-159706] 25 p0167 N80-15263 CHOPHA, K. L.	early commercial potential
Selective black nickel coatings on zinc surfaces	[ASME PAPER 79-WA/SOL-9] 25 p0069 A80-1858
by chemical conversion	

25 p0060 A80-18126

PERSONAL AUTHOR INDEX COOK, P.

CLEARY, P. L. Simple procedure for predicting long term average performance of nonconcentrating and of Mathematical modeling of coal gasification processes 25 p0089 A80-20913 concentrating solar collectors CLEMENTS, L. D.
Solar-thermal jet pumping for irrigation
[AIAA PAPER 80-0402] 25 p00 25 p0005 A80-11340 High temperature solar collector with optimal concentration - Non-focusing Presnel lens with 25 p0077 A80-19328 CLEMMER, R. secondary concentrator Impact of technology and maintainability on economic aspects of tokamak power plants 25 p0C59 A80-17884 25 p0060 A80-18127 COLLERAINE, A. P. Doublet III neutral beam injection system overview CLIFTON, D. S., JB.
Southeastern forum on appropriate technology
[PB-298796/4] 25 p0118 N and status report 25 p0079 A80-19599 25 p0118 N80-11965 Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks CLOTE, P. Experimental studies of neutron multiplication 25 p0079 A80-19600 from beryllium /n, 2n/ reaction in CTB blankets 25 p0081 A80-19662 COLLIE, M. J. Electric and hybrid vehicles CLUSEN, B. C. 25 p0041 A80-15658 Electric and hybrid vehicles: Commercialization COLLIER, R. K.
The analysis and simulation of an open cycle phase 3 planning [DOE/ERD-0004] 25 p0151 N80-14349 absorption refrigeration system CHARE, E. C.
PULSAR: An inductive pulse power source 25 p0029 A80-12825 A simplified technique for comparing the effectiveness of collector absorber coatings [SAND-79-1246C] 25 p0177 N80-15627 CHOBLOCH, H. 25 p0061 A80-18133 The conversion of ethylene glycol with air in COLLINS, C. 1. Chemical structures and reactivities of coal as an alkaline fuel cells 25 p0011 A80-11850 organic natural product [CONF-790415-25] COATES, R. 25 p0105 N80-11168 Survey of the research into energy-economy COLSHER, C. S.
Transfer of energy conservation technology to industry. A preliminary survey of existing interactions. Volume 1: Survey
[BCP/I6346-01/1-VOL-1] 25 p0139 N80-13633 COCCORESE, E. The combined d.c. power supply for JET [ANL/BES-TM-28] 25 p0080 A80-19621 COMPORT, W. J. The impact of LNG spills on the environment: Efficient indium tin oxide/polycrystalline silicon comparison of dispersion models and experimental solar cells data 25 p0039 A80-15136 [ UCRL-81812] 25 p0103 N80-10688 COCHRAM, H. D., JR.
Recent developments in coal liquefaction in the COMMISSO, R. J.

Recent developments in linear theta-pinch and United States laser-heated solenoid research 25 p0015 A80-11966 25 p0055 A80-17825 COCKS, P. H.
Study of corrosion and its control in aluminum CONDIT, W. C. Survey of mirror machine reactors solar collectors [COO-2934-7] 25 p0046 A80-16752 25 p0129 N80-12609 CONN, R. W. CODERRE, W. J.

Coal-fired open cycle MBD combustion plasmas Chemical equilibrium and transport properties Summary on reactor systems 25 p0059 A80-17894 CONNAN, J. workshop results
[AIAA PAPER 80-0091] Properties of gases and petroleum liquids derived 25 p0063 A80-18265 from terrestrial kerogen at various maturation COHAN, D. levels Proposed research planning format for the Environmental Assessment Department 25 p0073 A80-18832 [EPRI-EA-1018] 25 p0103 N80-10692 Hultirole cargo aircraft options and configurations [NASA-TH-80177] 25 p0105 N80-1105. COHEN, A. S. 25 p0105 N80-11053 Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste CONNOLLY, J. S. Research overview of biological and chemical conversion methods and identification of key research areas for SERI [SERI/TR-33-067] 25 p0115 N80 [CONF-790373-1] 25 p0163 N80-14562 COHER, R. 25 p0115 N80-11617 Energy from ocean thermal gradients CONSTANS, R. 25 p0044 A80-16652 The European economic community's policy concerning natural gas, coal and new sources of COMBN, R. S.
A chromatographic peak profiling technique for interpretation and analysis of combustion energy 25 p0032 A80-13175 CONSTANTINE, G.

Possible improvements to a basic cellular thin
blanket fusion reactor configuration [AIAA PAPER 80-0284] 25 p0063 A80~18291 COHN, E. M.
Fuel cell sesquicentennial 25 p0081 A80-19664 Performance of residential solar heating and cooling system with flat-plate and evacuated tubular collectors: CSU solar house 1 [C00-2577-16] 25 p0163 N80-25 p0033 A80-13223 COHN, S. Fuel choice and aggregate energy demand in the commercial sector [ORNL/CON-27] 25 p0126 N80-12580 25 p0163 N80-14568 Performance of residential solar heating and cooling system with flat-plate and evacuated tubular collectors: CSU Solar House 1 [C00-2577-17] 25 p0176 N80-COOK, B. COLE, R. R. L.
Influence of wall-jet gas injection on
liquid-metal MHD generator performance 25 p0047 A80-16996 25 p0176 N80-15616 COLEMAN, M. G. The automated array assembly task of the low-cost silicon solar array project, phase 2 The helium question 25 p0034 A80-13589 [ NASA-CR-162429] 25 p0109 N80-11562 COLLARES-PEREIRA, M.

Derivation of method for predicting long term
average energy delivery of solar collectors Evaluation of the environmental effects of western surface coal mining, volume 1 [PB-300375/3]

25 p0005 A80-11339

25 p0179 N80-15681

25 p0101 N80-10657

DAURIO, A.
Satellite Power System (SPS) preliminary societal
assessment
[HCP/24024-01/14] 25 p0101 N80-106

COOPERSTEIN, G.		CRESPY, G.	
Inertial confinement fusion at NRI	25 p0056 A80-17861	Improvement of the high-rate disch of the nickel electrode	arge behaviour
COPELAND, R. J.	•		25 p0010 A80-11841
Technology development needs for h process heat		CRISP, J. H. Analysis of remote site energy sto	rage and
Rough cost estimates of solar ther	25 p0143 N80-13669 mal/coal or		25 p0156 N80-14504
	25 p0151 N80-14269	The application of computers to fu experimental facilities	sion
COPPI, B. Numerical computations in the desi	gn of compact	-	25 p0080 A80-19619
ignition experiments  CORMAN, J. C.	25 p0078 A80-19589	CUNNINGTON, G. B.  Multi-use geothermal energy system augmentation for enhanced utiliz	
Coal to electricity - Integrated of combined cycle	asification	Non-electric application of geot Susanville, California	
	25 p0015 A80-11971		25 p0142 N80-13660
Thermodynamic behaviour of the Bag field	nore geothermal	Survey of MHD plant applications	25 p0015 A80-11972
	25 p0075 A80-19205	CWIKLINSKI, R. R. A single coal particle gasification	_
COSTAIN, J. R. Geothermal resources of the Atlant	ic Coastal Plain 25 p0016 A80-11977	a single coal particle gasilication	25 p0088 A80-20884
COSTOGUE, E.	•	ח	
Silicon materials outlook study for calendar years	or 1980-1985	DARNNER, W.	
[NASA-GR-162541] COTTINGHAM, J. G.	25 p0155 N80-14492	SISYPUS - A simulation model for s analyses of fusion power plants	systematic
Solar-powered steam generator heli	iostat 25 p0129 N80-12610	DAIGA, V. R.	25 p0079 A80-19597
COUDEVILLE, A. Work on laser interaction and imp	_	Commercial building and industrial for solar energy	applications
d'Etudes de Limeil	25 p0057 A80-17863	DAMEROE, T. B., III	25 p0017 A80-11985
COURINGTON, H. C. Doublet III neutral beam injection	-	A home-size solar-powered engine of systems of generation of electric	
and status report	25 p0079 A80-19599	[ASME PAPER 79-WA/SOL-34]	
COWAN, M. PULSAR: An inductive pulse power	-	Studies on the Ca-CaCrO4 and Li-Al for thermal battery applications	
	25 p0177 N80-15627		25 p0012 A80-11854
COX, P. W. Physical properties of gasoline/a:	lcohol automotive	DANDL, B. A. The Elmo Bumpy Torus /EBT/ reactor	
fuels [CONF-790520-4]	25 p0134 N80-13273	DANG, V.	25 p0058 A80-17883
LASL thermochemical hydrogen progr	cam status on	Fusion energy for hydrogen product [BNL-24906] DANG, V. D.	25 p0 180 N80-15897
October 31, 1978 [LA-UR-78-2895]	25 p0120 N80-12197	Environmental control technology	for carbon dioxide
Process design of the LASL bismut thermochemical hydrogen cycle		[BNL-24999] Coal conversion in flash hydropyro	
[LA-UR-79-1256] Synfuel (hydrogen) production from	25 p0129 N80-12605 m fusion power	[BNL-26209] DANIELS, B. J.	25 p0136 N80-13294
	25 p0136 N80-13296	LNG industry: An overview of pro-	jects and costs 25 p0168 N80-15278
Preliminary assessment of industr advanced ocean technology	ial needs for an	DANIBLS, R. L. Sugar crops as a source of fuels.	-
[NASA-CR-162435] CRAFOORD, C.	25 p0118 N80-11747	Agricultural research [TID-29400/1]	25 p0093 N80-10395
Interaction in limited arrays of Review of earlier results from		DANILKIN, I. S.  Current equilibrium and effective	_
and a presentation of the capab dynamic PBL model		L-2 stellarator plasma	25 p0055 A80-17829
[DM-26]	25 p0116 N80-11631	DARBANDI, A. Design of antennae for R.F. power	-
CRAIG, R. B. Environmental implications for ge development	othermal energy	tokamak plasma in the ion cyclo- frequency	
[CONF-790445-3] CRANDALL, J. L.	25 p01C3 N80-10694	DARGAY, J.	25 p0079 A80-19608
US program for the immobilization nuclear wastes	of high-level	Effects of energy policy on indus	try 25 p0129 N80-12604
[DP-MS-79-2] CRANE, R. B.	25 p0149 N80-13917	DARRIET, B. Use of reversible hydrides for hy	-
Heat pump centered integrated com	munity energy	-	25 p0042 A80-15991
systems; System development [ANL/ICES-TH-26]	25 p0173 N80-15589	Color graphic controls for the so	lar central
CRAWFORD, K. Environmental assessment report:	Lurgi coal	receiver test facility	25 p0022 A80-12626
gasification systems for SNG [PB-298109/0]	25 p0120 N80-12204	Techno-economic feasibility analy	
The design of a thin walled toroi		cells with and without concentr lighting	
chamber for a large RFP experim	ent 25 p0082 A80-19676	DAURIO, A.	25 p0026 A80-12773
		Satellite Power System (SPS) prel	ımınarv societal

PERSONAL AUTHOR INDEX DICKIESOB, 1-

DAUTRAY, R.
Work on laser interaction and implosion at Centre
d'Etudes de Limeil
25 p0057 &80-17 DEBUTE, O. J. Analysis of binary thermodynamic cycles for a moderately low-temperature geothermal resource
[TREE-1365] 25 p0139 N80-13627 25 p0057 A80-17863 DENNIHY, G.
Case study of the Brownell low energy requirement DAVID, B. E., JR. Semiconductor alternating-current motor drives and energy conservation house [BNL-509681 25 p0142 N80-13651 25 p0034 A80-13861 DAVIDSON, R. C.
Drift wave stability and transport theory in fusion systems
25 n0056 A DENNIS, C. INIS, C. Impact of technology and maintainability on economic aspects of tokamak power plants 25 p0059 A80-17884 25 p0056 A80-17846 DAVIS, A.
Assessment of Stirling engine potential in total and integrated energy systems
[ANL/ES-76] 25 p0140 N80-1 DENSEM, T. Controllable d.c. power supply from wind-driven self-excited induction machines 25 p0075 A80-19031 25 p0140 N80-13636 DAVIS, J. M. DESHNURH, R. G. Modeling and simulation of WECS assisted utility Commercialization strategy report for solar water heating systems [TID-28856-DRAFT] 25 p0 161 N80-14545 DAVIS, P.

Commercialization strategy report for electric and A probabilistic study of wind-electric conversion systems from the point of view of reliability and capacity credit hybrid vehicles
[TID-28858-DRAFT] 25 p0166 N80-14972 [TID-20058-DRAFI]
DAVIS, R. J.
Use of geothermal energy for desalination in New
Mexico: A feasibility study
[PB-299271/7]
25 p0179 N80-1 DESHPANDE, Ca Ma Pollution aspects of oilfired and coalfired boilers 25 p0074 A80-18849 DESPIC, A. R.
Neutral electrolyte aluminium-air battery
25 p0011 A80-11849 25 p0179 N80-15645 DAVITIAN, H. The marginal cost of electricity used as backup DEVORE, R. V.
Ohio exposition center solar home project
25 p0164 N80-14577 for solar hot water systems - A case study 25 p0021 A80-12436 DAY, J. W., JR.

Net energy analysis of alcohol production from sugarcane DEVOTO, R. S. Tandem mirror reactors 25 p0059 A80-17887 25 p0062 A80-18165 DEVEIRS, O.
Fluid dynamic aspects of wind energy conversion
[AGARD-AG-243] 25 p0103 N80-10683

DEWAR, R. L.
MHD stability limits on high-beta tokamaks
25 p0054 A80-17797 DAY, M. L. Plat-plate solar collector materials 25 25 p0035 A80-14409 DE ANGELIS, B.

Studies on plasma formation, relaxation and
heating in a reversed-field pinch 25 p0054 A80-17811 DEWEY, L. DBAN, S. O.
United States magnetic fusion energy program
25 p0126 N80-12583 Commercialization strategy report for recovery of natural gas from unconventional sources
[TID-28848-DRAFT] 25 p016 25 p0168 N80-15287 DEXTER, W. L. DEAVER, F. R.

Thermal energy utilization in the Mississippi
County Community College Photovoltaic Project
[ASME PAPER 79-WA/SOL-29] 25 p0068 A80-18575 Tandem mirror reactors 25 p0059 A80-17887 DHARIWAL, S. R.

Effect of thin oxide layer on the current voltage relations of Schottky barrier solar cells

25 p0026 A80-12772 DEB, S.

Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution Effect of image force on the characteristics of MOS solar cell 25 p0028 A80-12788 DEBARRE. L. A. Energy and economic assessment of anaerobic 25 p0028 A80-12785 digesters and biofuels for rural waste management [PB-296523/4] 25 p0094 N80-10398 DI CAPUA, M. S.
Megavolt and megampere diagnostic techniques for [PB-296523/4] 25
DRBICCARI, D. J.
Development of silver-hydrogen cells egavolt and megampere uraymostic college pulsed power particle beam fusion drivers 25 p0046 &80-16745 25 p001C A80-11843 18. H. Thermodynamic and structural properties of LaNi/5-y/Aly compounds and their related hydrides 25 p0033 A80-13200 DEBNEY, B. T.

A theoretical evaluation and optimization of the radiation resistance of gallium arsenide solar-cell structures DIBBLIO, B. G.
Overview of geothermal energy in the United States
[CONF-790530-1] 25 p0102 N80-10661 25 p0046 A80-16794 DECOSTE, R.
Inertial confinement fusion at NRL DICK, K. L.
Failure mechanisms of vented nickel-cadmium cells 25 n0056 A80-17861 in overcharge DEIF, I. W.
Solar cooling performance predictions via stochastic weather algorithms 25 p0010 A80-11840 DICKENSON, R. L.
Mission analysis for the Federal fuels from biomass program. Volume 3: Feedstock availability 25 p0020 A80-12430 DELLENBACK, P. A.
Solar-thermal jet pumping for irrigation
[AIAA PAPER 80-0402] 25 p00 25 p0077 A80-19328 [SAN-0115-T1] 25 p0168 N80-15276 DELLIS, A. N.
Heating, confinement and fluctuations in the CLEO stellarator DICKERSON, L. S.
Review of supporting research at Oak Ridge National Laboratory for underground coal 25 p0055 A80-17826 conversion [CONF-790630-9] 25 p0136 N80-13 DICKINSON, T. Failure mechanisms of vented nickel-cadmium cells DELOBEAU, F.
Work on laser interaction and implosion at Centre
d'Etudes de Limeil 25 p0136 N80-13295 in overcharge 25 p0057 A80-17863

25 p0038 A80-14709

DEMOS, E. K.

Hydrogen - The Denver story

25 p0010 A80-11840

DILLARD, C. A.		DORN, D.	
Computer software to calculate and parameters required in estimating production costs		National energy act of 1978: Far perspective. A study for the D	: western  S Department of
[EPRI-EA-674] DIMARCO, J. B.	25 p0095 N80-10584	Energy, Federal Region 9 [UCID-17944-REV-1] Energy system in the Far West: I	25 p0132 N80-12955 mpacts of the
LASL toroidal reversed-field pinch	programme 25 p0054 A80-17809	National Energy Act of 1978 [UCRL-52754]	25 p0140 N80-13638
Commercialization strategy report electric and direct heat application		DOBOSHENKO, V. G. High-voltage multijunction solar	cell 25 p0035 A80-14593
DIVAKARUBI, S. H.	25 p0157 N80-14508	DORY, R. A. High-beta tokamaks	
A conceptual design study on the a liquid metal heat transfer techn solar thermal power plant		DOSCHER, T. H.	25 p0054 180-17789
	25 p0154 N80-14484	The controlling production mechan gas from coalbeds	25 p0085 A80-20499
Preparation of superconducting coi composite	,	DOSS, B. D. Convective heat transfer in MHD o	hannels and its
DIVER, R. B.	25 p0040 A80-15512	influence on channel performance	e 25 p0064 A80-18355
Hydrogen and oxygen from water. II considerations in the reduction practice		Power take-off analysis for diago MHD channels	nally connected
-	25 p0078 A80-19473	[AIAA PAPER 80-0253] DOUGHERTY, D. A. SERAPH implementation plans	25 p0077 A80-19309
Commercialization strategy report systems	for small wind	[SERIJRE-34-152] DOUGLASS, R. H., JR.	25 p0172 N80-15570
Commercialization strategy report	25 p0161 N80-14543 for large wind	OIEC - Solar energy from the sea	25 p0085 A80-20424
systems [TID-28843-DRAFT] DIXIT, B. S.	25 p0161 N80-14544	DOWNING, J. N. LASL toroidal reversed-field pinc	h programme
Heat pump centered integrated comm systems; System development		DOWNS, W. Characterization and combustion o	25 p0054 A80-17809 f SRC 2 fuel oil
DODD, H. H.	25 p0111 N80-11574	[EPRI-FP-1028] DOWNWARD, J. G.	25 p0119 N80-12192
Solar mechanical energy storage pr [SAND-78-1982C] DOBLLING, N.	25 p0127 N80-12590	The KESF laser fusion programme  DOYLE, B. J.	25 p0056 A80-17860
Wave power systems	25 p0164 N80-14576	Research and development of a hea heater, volume 1	t and pump water
The thermal triode		[ORNL/SUB-7321-1] DRAKE, D. D.	25 p0130 N80-12613
DOGGETT, J.	25 p0037 A80-14675	Kentucky's coal-based chemical/en	ergy park 25 p0013 A80-11954
Development of the Rocky Mountain Environmental Technology Center: analysis		Boundary layer analysis of cold-b	lanket systems 25 p0058 A80-17877
DOGGETT, J. N.	25 p0179 N80-15670	DRAZIC, D. M. Neutral electrolyte aluminium-air	_
Tandem mirror reactors  DOLINSKI, U.	25 p0059 A80-17887	DREIER, M. R.	25 p0011 A80-11849
On the substitution of petroleum b sources - Using the energy econo		Evaluation of feasibility of pres for use in wind turbine blades [NASA-CB-159725]	tressed concrete 25 p0170 N80-15553
Germany as an example	25 p0074 A80-19000	DREW, M. S. Correspondence between solar load	_
DOLL, D. W. Doublet III neutral beam injection and status report	system overview	passive water wall systems and performance estimates	f-Chart
DONALDSON, I. G.	25 p0079 A80-19599	Solar heating system performance sinusoidal inputs	25 p0029 A80-12821 estimation using
An estimate of the resource potent Zealand geothermal fields for po	wer generation	DRIVER, C.	25 p0061 A80-18130
DONALDSOB, T. P. Laser fusion implications of reson	25 p0076 A80-19208	The role of technology as air tra the fuel situation	
and associated electrostatic fie	ld pressure 25 p0057 A80-17869	DROWNIK, L. M.	25 p0037 A80-14700
DONERLLY, J. J., JR. Hydrogen-powered vs. battery-power	ed automobiles	Simultaneous investigation of tra longitudinal edge effects in th plane MHD induction pump	e channel of a
DONSI, G. The calculation of carbon load and	25 p0033 A80-13199	DRYER, P. L.	25 p0030 A80-12897
of oxygen concentration in the b fluidized combustor	ed of a	<pre>Fundamental and semi-global kinet   hydrocarbon combustion   [COO-4272-3]</pre>	25 p0165 N80-14587
DONVITO, P.	25 p0077 A80-19421	DUBEY, R. C. Review of the work done at C.P.E.	R.I. on the
Residential sector energy forecast level for 1978-electricity, natu two fuel oil and propane	s, national ral gas, number	development of single crystal s cells for use with concentrated	ilicon solar light
[DOE/EIA-0102/50] DORAN, R. J.	25 p0113 N80-11601	DUBIN, R. R. Evaluation of sintered SiC as an	25 p0027 A80-12777 electrode and
Pailure mechanisms of vented nicke in overcharge		container material in sodium/su	lfur cells 25 p0035 A80-14588
	25 p0010 A80-11840		

OUBOW, J. The semiconductor-insulator-semico	nductor /indium	<b>E</b>	
tin oxide on silicon/ solar cell	. =	Ε	
Characteristics and loss mechani	.sms 25 p0006 A80-11368	EAPEN, J. T. An electronic device for intermitt	ent tracking
DUDLEY, V. E.	_		25 p0027 A80-12782
Concentrating solar collector test Collector Bodule Test Facility (	(CHTP)	EASTERLY, J. L. Engineering concerns in solar syst	en design and
[SAND-78-0977] Performance testing of the General	25 p0111 N80-11580 Electric	operation [SOLAR/0811-79/01]	25 p0160 N80-14539
Engineering Prototype Collector		EASTON, C. R.	-
[SAND-79-0514] DUECHS, D. F.	25 p0141 N80-13645	Solar central receiver prototype b item B.D., volume 1	eliostat CDEL
Refueling by means of pellets - Al	lation rate and		25 p0146 N80-13700
injection velocity consideration	ıs 25 p0080 A80-19611	PCCLESTON, B. H.	onioni3
DOFF, W. S.		Ambient temperature, fuel economy, trip length	
Performance of residential solar h cooling system with flat-plate a		[PB-298847/5] ECCLESTON, D. B.	25 p0166 N80-14976
tubular collectors: CSU solar b	ouse 1	Ethanol/gasoline blends as automot	
[COC-2577-16] Performance of residential solar h	25 p0163 N80-14568 neating and	[CONF-790520-5] ECKLUND, B. B.	25 p0168 N80-15280
cooling system with flat-plate a	ind evacuated	Hydrogen-powered vs. battery-power	
tubular collectors: CSU Solar F	louse 1 25 p0176 N80-15616	EDELPELT, I. H.	25 p0033 A80-13199
DUFFIE, J. A.	25 po 176 186-15616	Regenerative flywheel energy stora	ige system
Computers in the design of solar e		[UCRL+13982]	25 p0112 N80-11594
DUFFIELD, R. B.	25 p0020 180-12426	EDENBURN, M. W. Analytical evaluation of a solar	
Hot dry rock geothermal energy dev		thermophotovoltaic (TPV) convert	
[LA-7807-HDR] DUFFI, R. B.	25 p0144 N80-13673	[SAND-79-0504C] Status of the US Department of Ene	25 p0099 N80-10638
Barriers to the application of win	ıd e <b>n</b> erg <b>y</b>	concentrator development project	
conversion systems in urban set	tings	[SAND-78-2187C]	25 p0172 N80-15578
DUGAN, J. P., JR.	25 p0 155 N80-14494	EDESESS, M. Solar pond concepts: Old and new	
Aircraft Energy Efficiency (ACEE)		[SERI/TP-35-208]	25 p0102 N80-10663
DUGAN, V. L.	25 p0091 N80-10206	EDESKUTY, P. J. Critical review and assessment of	environmental
Dispersed power systems and total		and safety problems in hydrogen	energy systems
[SAND-78-2006C] DUGGER, G. L.	25 p0096 N80-10608	[LA-7820-PR] EDLER, H. G.	25 p0145 N80-13690
Is there a chance for OTEC		Satellite Power System (SPS): An	overview of
DUNCAN, D. A.	25 p0007 A80-11394	prospective organizational structure solar satellite field	ctures in the
Research and development of rapid	hydrogenation	[TID-29094]	25 p0154 N80-14478
for coal conversion to synthetic	c motor fuels	EDWARDS, M. S.	from undorground
(riser cracking of coal) [FE-2307-38]	25 p0106 N80-11249	Economics of gasoline production f coal gasification via mobil-M pr	
Research and development of rapid		[CONF-790405-12]	25 p0106 N80-11246
for coal conversion to synthetic (riser cracking of coal)	. motor ideis	EGDELL, R. G. Thionine coated electrode for phot	togalvanic cells
[FE-2307-46]	25 p0134 N80-13280		25 p0051 A80-17343
DUNN, P. D. A review of the U.S. wind energy p	programme	BBDE, C. L. A conceptual design study on the a	application of
	25 p0042 A80-16083	liquid metal heat transfer techi	
DUNNING, R. L.  Research and development of a heat	t and pump water	solar thermal power plant [NASA-CR-162544]	25 p0154 N80-14484
heater, volume 1		EHRICKE, K. A.	<del>-</del>
[ORNL/SUB-7321-1] DURPEE, R. C.	25 p0130 N80-12613	Space light - Space industrial ent solar option	nancement of the
Computer software to calculate and		•	25 p0073 A80-18797
parameters required in estimation production costs	ng coal	EHST, D.  Impact of technology and maintains	hilitz on
[EPRI-EA-674]	25 p0095 N80-10584	economic aspects of tokamak power	
DURU, C. U.	orformance of	DICCONDDIC B M	25 p0059 A80-17884
A cheap method of improving the period type solar stills	eriormance or	EISSENBERG, D. H. Low-temperature thermal energy sto	rage program
	25 p0006 A80-11343	annual operating plan	
DUVALL, J. J. Adsorption of hydrogen sulfide in	shale retorted	[OBNL/TM-6605] Low-temperature thermal energy sto	25 p0125 N80-12568
in an inert atmosphere		annual operating plan	
DVERBIAKOV, V. S.	25 p0085 A80-20454	[ORNI/TM-6934] BKDAHL, C. A.	25 p0139 N80-13631
Development of optical waveguides	for a	Recent developments in linear thet	ta-pinch and
power-related application	35 -0036 880-10596	laser-heated solenoid research	25 -0055 100-17025
DWYER, C.	25 p0036 A80-14596	EL GABALAWI, N.	25 p0055 A80-17825
Current U. S. petroleum situation	and short-term	Performance characteristics of poi	
supply/demand outlook [DOE/BIA-0184/5]	25 p0138 N80-13607	distributed-receiver solar Brayt [AIAA PAPEB 80-0293]	con systems 25 p0063 A80-18298
DYBBS, A.	_	EL-REPAIE, M. P.	•
A solar assisted and wind powered residential dwellings	neat pump for	Multi-pass solar heater with heat- passes and exposed to non-unifor	
[ASME PAPER 79-WA/HT-33]	25 p007C A80-18595	[ASME PAPER 79-WA/HT-67]	25 p0070 A80-18600
		ELETSKII, A. V. Kinetics of the processes in a pla	asma nroduced hy
•		an electron beam in a dense iner	
			25 p0007 A80-11612

ELKIB, A. I.		ESTES, R. C.	
Simultaneous investigation of tra longitudinal edge effects in th		Optimization and comparison strat	egies for solar
plane MHD induction pump	25 p0030 A80-12897	energy systems [ASME PAPER 79-WA/SOL-26] ETTENBERG, M.	25 p0067 A80-18573
ELKIND, M. M. Combined effects of polycyclic ar	_	Analysis of S-band solid-state tr the solar power satellite	ansmitters for
hydrocarbons and sunlight [CONF-790447-4]	25 p0131 N80-12631	[ NASA-CR-160320 ] ETTER, D. B.	25 p0096 N80-10600
ELKOTB, M. M.	•	Studies of directly absorbing flu	
Multi-pass solar heater with heat passes and exposed to non-unifo		mid-temperature solar thermal a [MLM-2625-OP]	pplications 25 p0160 N80-14540
[ASME PAPER 79-WA/HT-67] BLIGBRING, H.	25 p0070 A80-18600	Particle beam systems in plasma d	
SSPS project - Two solar power pl			25 p0045 A80-16718
ELLICKSON, P. L.	25 p0032 A80-13180	BUSTACE, D. J. Zinc-bromine battery studies	-
Resolving environmental issues in		-	25 p0010 A80-11845
<pre>development: Roles for the Dep and its field offices</pre>	artment of Energy	EVANS, A. R. Transfer of energy conservation t	echnology to
[RAND/R-2335-DOE] ELLINGSON, W. A.	25 p0099 N80-10636	industry. A preliminary survey mechanisms	
Long-term erosion monitoring of m		[ANL/EES-TM-28]	25 p0111 N80-11576
by ultrasonic pulse-echo techni [CONF-790480-1]	ques 25 p0167 N80-15259	EVANS, D.  Measurement of circumsolar radiat	ion: Status report
ELLIOTT, G. R. B.	-	[LBL-8391]	25 p0133 N80-12982
Night storage and backup generati electrochemical engines	on with	EVANS, R. Impact of technology and maintain	ahility on
[LA-UR-78-1149]	25 p0113 N80-11596	economic aspects of tokamak pow	
ELLSWORTH, D. A. Energy and economic assessment of	anaerobic		25 p0059 A80-17884
digesters and biofuels for rura	l waste management	F	
[PB-296523/4] BLWOOD, J. P.	25 p0094 N80-10398	FABBRO, R.	
Supply, harvesting and nature of a fuel	forest biomass as	Experimental studies of interacti processes in laser fusion	on and transport
DEEDLA T	25 p0017 A80-11982	-	25 p0057 A80-17864
The simulation of building heat t passive solar systems	ransfer for	Computer software to calculate an parameters required in estimati	
[ASME PAPER 79-WA/SOL-38] ENGELHARDT, W.	25 p0067 A80-18574	production costs [BPRI-EA-674]	•
Accumulation of impurities and st		PABRE, B.	25 p0095 N80-10584
in the high-density regime of P	25 p0054 A80-17759	Experimental studies of interacti processes in laser fusion	on and transport
Influence of the scaling of plasm	a confinement on	PIDDTC C	25 p0057 A80-17864
the economy and unit size of ig		FABRIS, G. Influence of wall-jet gas injecti liquid-metal MHD generator perf	
THAT P. A.	25 p0079 A80-19594		25 p0047 A80-16996
ENGER, R. C. Solar electric generating system	resource	Solar-powered liquid-metal MHD po [ASME PAPER 79-WA/SOL-22]	Wer systems 25 p0065 A80-18554
requirements		Experimental two-phase liquid-met	al -
ENGLISH, R. A.	25 p0005 A80-11341	magnetohydrodynamic generator p [AD-A073128]	rogram 25 p0132 N80-12882
Development of a high temperature		PABUSS, B. H.	•
water chiller. Volume 3: Phas [SAN-1590-1/3-VOL-3]	25 p0101 N80-10654	Resource recovery systems costs	25 p0001 A80-10029
RREMINA, T. V.	fan a	PALICE, L.	
Development of optical waveguides power-related application	TOL a	Commercialization strategy report electric and direct heat applic	for hydrothermal
			ation
RRMAK. D. L.	25 p0036 A80-14596	[TID-2884Q-DRAFT]	ation 25 p0157 N80-14508
ERMAK, D. L. Environmental overview of geother	mal development:	[TID-2884Q-DRAFT] FALICOFF, W.	ation 25 p0157 N80-14508
Environmental overview of geother The Geysers-Calistoga KGRA. Vo	mal development:	[TID-2884Q-DRAFT]  PALICOPP, W.  Solar/wind handbook for Hawaii: applications for Hawaii, the Pa	ation 25 p0157 N80-14508 Technical Cific Basin and
Bnvironmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCRL-52496-VOL-1]	mal development:	[TID-28840-DRAFT]  PALICOPP, W.  Solar/wind handbook for Hawaii: applications for Hawaii, the Pa sites worldwide with similar cl [UCRL-15053]	ation 25 p0157 N80-14508 Technical Cific Basin and
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCRL-52496-VOL-1] ERNEST, R. K.	mal development: lume 1: Issues 25 p0177 N80-15626	[TID-28840-DRAFT]  PALICOPP, W.  Solar/wind handbook for Hawaii: applications for Hawaii, the Pa sites worldwide with similar cl [UCRL-15053]  PALKEBBERRY, H. L.	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCRL-52496-VOL-1] ENNEST, R. K. Mission analysis for the Pederal biomass program. Volume 3: Fe	mal development: lume 1: Issues 25 p0177 N80-15626 fuels from	[TID-28840-DRAFT]  PALICOPP, W.  Solar/wind handbook for Hawaii: applications for Hawaii, the Pa sites worldwide with similar cl [UCRL-15053]	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCRL-52496-VOL-1] ERNEST, R. K. Mission analysis for the Federal biomass program. Volume 3: Fe availability [SAN-0115-T1]	mal development: lume 1: Issues 25 p0177 N80-15626 fuels from	[TID-28840-DRAFT]  PALICOPP, W.  Solar/wind handbook for Hawaii: applications for Hawaii, the Pa sites worldwide with similar cl [UCHL-15053]  PALKEMBERRY, H. L. Kentucky's coal-based chemical/en  FALTER, H. D. Construction and test of a high p	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628 ergy park 25 p0013 A80-11954
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCRL-52496-VOL-1] ENNEST, R. K. Mission analysis for the Pederal biomass program. Volume 3: Fe availability [SAN-0115-T1] ERVOLINI, B.	mal development: lume 1: Issues 25 p0177 N80-15626 fuels from edstock 25 p0168 N80-15276	[TID-28840-DRAFT]  PALICOPP, W.  Solar/wind handbook for Hawaii: applications for Hawaii, the Pa sites worldwide with similar cl [UCRL-15053]  PALKEBBERRY, H. L. Kentucky's coal-based chemical/en  FALTER, H. D.	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628 ergy park 25 p0013 A80-11954 ower injector of
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCRL-52496-VOL-1] ERNEST, R. K. Mission analysis for the Federal biomass program. Volume 3: Fe availability [SAN-0115-T1]	mal development: lume 1: Issues 25 p0 177 N80-15626 fuels from edstock 25 p0 168 N80-15276 geothermal	[TID-28840-DRAFT]  PALICOPP, W.  Solar/wind handbook for Hawaii: applications for Hawaii, the Pa sites worldwide with similar cl [UCRL-15053]  PALKEBBERRY, H. L. Kentucky's coal-based chemical/en  PALTER, H. D. Construction and test of a high p hydrogen cluster ions  PAN, J. C. C.	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628 ergy park 25 p0013 A80-11954 ower injector of 25 p0080 A80-19618
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCBL-52496-VOL-1] ERNEST, R. K. Mission analysis for the Federal biomass program. Volume 3: Fe availability [SAN-0115-T1] ERVOLINI, H. Analysis of resource pricing for electric power production ESCHER, W. J. D.	mal development: lume 1: Issues  25 p0177 N80-15626  fuels from edstock  25 p0168 N80-15276  geothermal  25 p0088 A80-20889	[TID-28840-DRAFT]  PALICOPP, N.  Solar/wind handbook for Hawaii: applications for Hawaii, the Pa sites worldwide with similar cl [UCHL-15053]  PALKEBBERRY, H. L. Kentucky's coal-based chemical/en  FALTER, H. D. Construction and test of a high p hydrogen cluster ions	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628 ergy park 25 p0013 A80-11954 ower injector of 25 p0080 A80-19618
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCRL-52496-VOL-1] ERNEST, R. K. Mission analysis for the Federal biomass program. Volume 3: Fe availability [SAN-0115-T1] ERVOLINI, H. Analysis of resource pricing for electric power production	mal development: lume 1: Issues 25 p0177 N80-15626 fuels from edstock 25 p0168 N80-15276 geothermal 25 p0088 A80-20889 red automobiles	[TID-28840-DRAFT]  PALICOPP, W.  Solar/wind handbook for Hawaii:     applications for Hawaii, the Pa     sites worldwide with similar cl     [UCRL-15053]  PALKEBBERRY, H. L.     Kentucky's coal-based chemical/en  PALTER, H. D.     Construction and test of a high p     hydrogen cluster ions  PAN, J. C. C.     Efficient shallow-homojunction Ga     molecular beam epitaxy	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628 ergy park 25 p0013 A80-11954 ower injector of 25 p0080 A80-19618 As solar cells by 25 p0035 A80-13986
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCBL-52496-VOL-1] ERNEST, R. K. Mission analysis for the Federal biomass program. Volume 3: Fe availability [SAN-0115-T1] ERVOLINI, H. Analysis of resource pricing for electric power production ESCHER, W. J. D.	mal development: lume 1: Issues  25 p0177 N80-15626  fuels from edstock  25 p0168 N80-15276  geothernal  25 p0088 A80-20889  red automobiles 25 p0033 A80-13199 sea	[TID-28840-DRAFT]  PALICOPP, N.  Solar/wind handbook for Hawaii:     applications for Hawaii, the Pa     sites worldwide with similar cl     [UCRL-15053]  PALKENBERRY, H. L.     Kentucky's coal-based chemical/en  FALTER, H. D.     Construction and test of a high p     hydrogen cluster ions  PAN, J. C. C.     Efficient shallow-homojunction Ga     molecular beam epitaxy  Calculated and measured efficienc     shallow-homojunction Gabs solar	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628 ergy park 25 p0013 A80-11954 ower injector of 25 p0080 A80-19618 As solar cells by 25 p0035 A80-13986 ies of thin-film
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCRL-52496-VOL-1]  ENNEST, R. K. Mission analysis for the Pederal biomass program. Volume 3: Fe availability [SAN-0115-T1]  ERVOLINI, H. Analysis of resource pricing for electric power production  ESCHER, W. J. D. Hydrogen-powered vs. battery-powe Direct solar energy conversion at Survey of liquid hydrogen contain	mal development: lume 1: Issues 25 p0177 N80-15626 fuels from edstock 25 p0168 N80-15276 geothermal 25 p0088 A80-20889 red automobiles 25 p0033 A80-13199 sea 25 p0053 A80-17583 er techniques for	[TID-28840-DRAFT]  PALICOPP, N.  Solar/wind handbook for Hawaii:     applications for Hawaii, the Pa     sites worldwide with similar cl     [UCHL-15053]  PALKEBERRY, H. L.     Kentucky's coal-based chemical/en  FALTER, H. D.     Construction and test of a high p     hydrogen cluster ions  PAM, J. C. C.     Efficient shallow-homojunction Ga     molecular beam epitaxy  Calculated and measured efficienc     shallow-homojunction GaAs solar     substrates	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628 ergy park 25 p0013 A80-11954 ower injector of 25 p0080 A80-19618 As solar cells by 25 p0035 A80-13986 ies of thin-film
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCRL-52496-VOL-1] ENNEST, R. K. Mission analysis for the Federal biomass program. Volume 3: Fe availability [SAN-0115-T1] ENVOLINI, H. Analysis of resource pricing for electric power production  ESCHER, W. J. D. Hydrogen-powered vs. battery-powe Direct solar energy conversion at Survey of liquid hydrogen contain highway vehicle fuel system app	mal development: lume 1: Issues  25 p0177 N80-15626  fuels from edstock  25 p0168 N80-15276  geothermal  25 p0088 A80-20889  red automobiles 25 p0033 A80-13199 sea 25 p0053 A80-17583 er techniques for lications	[TID-28840-DRAFT]  PALICOPP, N.  Solar/wind handbook for Hawaii:     applications for Hawaii, the Pa     sites worldwide with similar cl     [UCHL-15053]  PALKEBBERRY, N. L.     Kentucky's coal-based chemical/en  FALTER, N. D.     Construction and test of a high p     hydrogen cluster ions  PAN, J. C. C.     Efficient shallow-homojunction Ga     molecular beam epitaxy  Calculated and measured efficienc     shallow-homojunction GaAs solar     substrates  PANG, L. R.	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628 ergy park 25 p0013 A80-11954 ower injector of 25 p0080 A80-19618 As solar cells by 25 p0035 A80-13986 ies of thin-film cells on Ge 25 p0039 A80-15141
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCRL-52496-VOL-1]  ENNEST, R. K. Mission analysis for the Pederal biomass program. Volume 3: Fe availability [SAN-0115-T1]  ERVOLINI, H. Analysis of resource pricing for electric power production  ESCHER, W. J. D. Hydrogen-powered vs. battery-powe Direct solar energy conversion at Survey of liquid hydrogen contain highway vehicle fuel system app [ECP/H2752-01] ESKOV, A. G.	mal development: lume 1: Issues 25 p0177 N80-15626 fuels from edstock 25 p0168 N80-15276 geothermal 25 p0088 A80-20889 red automobiles 25 p0033 A80-13199 sea 25 p0053 A80-17583 er techniques for lications 25 p0092 N80-10383	[TID-28840-DRAFT]  PALICOPP, W.  Solar/wind handbook for Hawaii:     applications for Hawaii, the Pa     sites worldwide with similar cl     [UCHL-15053]  PALKEBERRY, H. L.     Kentucky's coal-based chemical/en  FALTER, H. D.     Construction and test of a high p     hydrogen cluster ions  PAH, J. C. C.     Efficient shallow-homojunction Ga     molecular beam epitaxy  Calculated and measured efficienc     shallow-homojunction GaAs solar     substrates  PANG, L. B.     A solar energy system with annual     [ASHE PAPER 79-WA/SOL-30]	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628 ergy park 25 p0013 A80-11954 ower injector of 25 p0080 A80-19618 As solar cells by 25 p0035 A80-13986 ies of thin-film cells on Ge 25 p0039 A80-15141
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCRL-52496-VOL-1] ENNEST, R. K. Mission analysis for the Federal biomass program. Volume 3: Fe availability [SAN-0115-T1] ERVOLINI, H. Analysis of resource pricing for electric power production  ESCHER, W. J. D. Hydrogen-powered vs. battery-powe Direct solar energy conversion at Survey of liquid hydrogen contain highway vehicle fuel system app [BCP/M2752-01] ESKOV, A. G. Principles of plasma heating and	mal development: lume 1: Issues 25 p0177 N80-15626 fuels from edstock 25 p0168 N80-15276 geothermal 25 p0088 A80-20889 red automobiles 25 p0033 A80-13199 sea 25 p0053 A80-17583 er techniques for lications 25 p0092 N80-10383	[TID-28840-DRAFT]  PALICOPP, N.  Solar/wind handbook for Hawaii: applications for Hawaii, the Pa sites worldwide with similar cl [UCRL-15053]  PALKENBERRY, H. L. Kentucky's coal-based chemical/en  FALTER, H. D. Construction and test of a high p hydrogen cluster ions  PAN, J. C. C. Efficient shallow-homojunction Ga molecular beam epitaxy  Calculated and measured efficienc shallow-homojunction GaAs solar substrates  PANG, L. R. A solar energy system with annual [ASME PAPER 79-WA/SOL-30] PARAHAT, M.	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628 ergy park 25 p0013 A80-11954 ower injector of 25 p0080 A80-19618 As solar cells by 25 p0035 A80-13986 ies of thin-film cells on Ge 25 p0039 A80-15141 aquifer storage 25 p0066 A80-18560
Environmental overview of geother The Geysers-Calistoga KGRA. Vo and recommendations [UCRL-52496-VOL-1]  ENNEST, R. K. Mission analysis for the Pederal biomass program. Volume 3: Fe availability [SAN-0115-T1]  ERVOLINI, H. Analysis of resource pricing for electric power production  ESCHER, W. J. D. Hydrogen-powered vs. battery-powe Direct solar energy conversion at Survey of liquid hydrogen contain highway vehicle fuel system app [ECP/H2752-01] ESKOV, A. G.	mal development: lume 1: Issues 25 p0177 N80-15626 fuels from edstock 25 p0168 N80-15276 geothermal 25 p0088 A80-20889 red automobiles 25 p0033 A80-13199 sea 25 p0053 A80-17583 er techniques for lications 25 p0092 N80-10383	[TID-28840-DRAFT]  PALICOPP, W.  Solar/wind handbook for Hawaii:     applications for Hawaii, the Pa     sites worldwide with similar cl     [UCHL-15053]  PALKEBERRY, H. L.     Kentucky's coal-based chemical/en  FALTER, H. D.     Construction and test of a high p     hydrogen cluster ions  PAH, J. C. C.     Efficient shallow-homojunction Ga     molecular beam epitaxy  Calculated and measured efficienc     shallow-homojunction GaAs solar     substrates  PANG, L. B.     A solar energy system with annual     [ASHE PAPER 79-WA/SOL-30]	ation 25 p0157 N80-14508 Technical cific Basin and imatic conditions 25 p0177 N80-15628 ergy park 25 p0013 A80-11954 ower injector of 25 p0080 A80-19618 As solar cells by 25 p0035 A80-13986 ies of thin-film cells on Ge 25 p0039 A80-15141 aquifer storage 25 p0066 A80-18560 bile propulsion,

		4	
Energy storage system for automobi	le propulsion,	PISCHER, W. H.	
1978 study. 2: Detailed report		Coal-fired open cycle MBD combust	ion plasmas -
[UCRL-52553-VOL-2] PARBER, P. S.	25 p0 181 N80-15995	Chemical equilibrium and transp	ort properties
Status of development, energy and	economics	Workshop results [AIAA PAPER 80-0091]	25 p0063 A80-18265
aspects of alternative technolog		FISHER, S. T.	23 P0003 200 10203
	25 p0145 N80-13689	Processing of coal, oil sand and	heavy oil in situ
PARRIS, D. R. Optimal control studies of a solar	hosting cretor	by electric and magnetic fields	
	25 p0100 N80-10646	PLASK, A. P.	25 p0019 A80-12310
Energy savings for a solar heated		SRC solids - Boiler fuel and buil	ding block
building through adaptive optima			25 p0015 A80-11967
[LA-UR-78-2986] FAUNCE, S. F.	25 p0115 N80-11616	PLAT, A.	
Modeling of a thermal wall panel u	sing phase	Optimization of multi-layer front patterns for solar cells	-contact grid
change materials	Sing phase	pucterns for solar cells	25 p0028 A80-12816
	25 p0021 A80-12439	FLEMING, E. S.	-
PECHTER, R. B.		Development of combustion data to	
Determination of the technical and feasibility of luminescent solar		gases as industrial process fue.	ls. Project
	25 p0100 N80-10650	61004 special report no. 4: High-forward-momentum burner	
PEDIANIN, O. I.	F	[FE-2489-33]	25 p0093 N80-10390
Current equilibrium and effective	ion charge in	PLETCHER, C. A. J.	_
L-2 stellarator plasma	25 -0055 100 17020	Electricity generation from jet-s	
PEILER, C. E.	25 p0055 A80-17829	PLETCHER, B. A.	25 p0007 A80-11644
Preparing aircraft propulsion for	a new era in	Hydrogen and oxygen from water. I	I - Some
energy and the environment		considerations in the reduction	
	25 p0053 A80-17737	practice	
PEJER, A. A.	na somboskismi	BOOTT COT C	25 p0078 A80-19473
Development of gas turbine fuels a An overview	na compastion;	POGELSON, S.  Fusion energy for hydrogen product	tion
	25 p0093 N80-10391		25 p0180 N80-15897
PELDMAN, K. T., JR.	-	FOLRY, R. T.	
Design of heat pipe cooled laser m		On the properties of a fuel cell	
inverted meniscus evaporator wic [AIAA PAPER 80-0148]	25 p0064 A80-18366	[AD-A072864] FOLLBA, D.	25 p0123 N80-12554
FELTHAM, C.	25 p0004 k00-10500	Conceptual design, realization and	d experimentation
The electrochemical characteristic	s of iron	of a concentration photovoltaic	
sulphide in immobilized salt ele		SOPHOCLE 1000 prototype	_
FELTHAM, C. B.	25 p0013 A80-11862	BONDY D M	25 p0001 A80-10109
Recent advances in high temperatur	e primary	FOREL, B. M. Transverse particle losses in axia	ally asymmetrical
lithium batteries		open traps	arry asymmetricar
	25 p0013 A80-11863		25 p0055 A80-17840
FERBER, R.	-	FORBES, R. B.	-
FERBER, B. Silicon materials outlook study fo	-	Addition of solar air heaters to a	-
PERBER, R. Silicon materials outlook study fo calendar years [NASA-CR-162541]	-		a pre-engineered
PERBER, R. Silicon materials outlook study fo calendar years [NASA-CR-162541] PERRARIO, B.	r 1980-1985 25 p0155 N80-14492	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33] POREMAN, K. M.	a pre-engineered 25 p0066 A80-18566
FERBER, B. Silicon materials outlook study fo calendar years [NASA-CR-162541] FERRARIO, B. Behavior of SORB-AC wafer pumps in	r 1980-1985 25 p0155 N80-14492 contaminated H2	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33] FOREMAN, K. M. Experimental demonstration of the	a pre-engineered 25 p0066 180-18566
PERBER, B. Silicon materials outlook study fo calendar years [NASA-CR-162541] FERRARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33] POREMAN, K. M.	a pre-engineered 25 p0066 180-18566 concept
FERBER, R. Silicon materials outlook study fo calendar years [NASA-CR-162541] FERRARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FORBHAN, K. H. Experimental demonstration of the diffuser-augmented wind turbine	a pre-engineered 25 p0066 180-18566
PERBER, B. Silicon materials outlook study fo calendar years [NASA-CR-162541] PERRABIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  PICKETT, P. B. Space applications of superconduct	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33] FOREMAN, K. M. Experimental demonstration of the diffuser-augmented wind turbine FORMILLER, D. J. Osmotically pumped energy transpon	a pre-engineered 25 p0066 A80-18566 concept 25 p0007 A80-11643
PERBER, R. Silicon materials outlook study fo calendar years [NASA-CR-162541] FERRARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  FICKETT, F. R. Space applications of superconduct field magnets	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. H.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]	a pre-engineered 25 p0066 A80-18566 concept 25 p0007 A80-11643
FERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541] FERRARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o FICKETT, F. R. Space applications of superconduct field magnets	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  POREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transportant paper 80-0210]  FORMEY, J. A.	a pre-engineered 25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378
PERBER, R. Silicon materials outlook study fo calendar years [NASA-CR-162541] FERRARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  FICKETT, F. R. Space applications of superconduct field magnets	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FORBMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORMEY, J. A.  Computer program for assessing the	a pre-engineered 25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic
FERBER, R. Silicon materials outlook study fo calendar years [NASA-CR-162541] FERRARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o FICKETT, F. R. Space applications of superconduct field magnets FIELD, R. L. An average slope factor for solar [ASME PAPER 79-WA/SOL-41]	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORMEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial	a pre-engineered 25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 r0064 A80-18378  e economic single family
PERBER, B. Silicon materials outlook study fo calendar years [NASA-CR-162541] PERBARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  PICKETT, P. B. Space applications of superconduct field magnets  PIELD, R. L. An average slope factor for solar [ASME PAPER 79-WA/SOL-41] PIELDING, S. J.	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572	Addition of solar air heaters to a metal building  [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport  [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial  [NASA-TM-78251]	a pre-engineered 25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 r0064 A80-18378  e economic single family
PERBER, R. Silicon materials outlook study fo calendar years [NASA-CR-162541] FERNARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  FICKETT, P. R. Space applications of superconduct field magnets  FIELD, R. L. An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  FIELDING, S. J. Results from the Divertor Injectio	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FORBMAN, K. H.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORMEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  FORSBERG, H. C.	a pre-engineered 25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  FICKETT, F. R.  Space applications of superconduct field magnets  FIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  FIELDING, S. J.  Results from the Divertor Injection Experiment /DITE/	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  FORSBERG, H. C.  Energy storage systems for automole	a pre-engineered 25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion,
PERBER, B. Silicon materials outlook study fo calendar years [NASA-CR-162541] FERNARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  FICKETT, P. B. Space applications of superconduct field magnets  FIELD, B. L. An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  FIELDING, S. J. Results from the Divertor Injection Experiment /DITE/  FILGES, D.	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  PORBMAN, K. H.  Experimental demonstration of the diffuser-augmented wind turbine  PORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  PORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  PORSBERG, H. C.  Energy storage systems for automol 1978 study. 1: Overview and fit [UCRL-52553-VOL-1]	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  FICKETT, F. R.  Space applications of superconduct field magnets  FIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  FIELDING, S. J.  Results from the Divertor Injection Experiment /DITE/  FILGES, D.  Experimental studies of neutron mu	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication.	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transportian portion [AIAA PAPER 80-0210]  FORMEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  FORSBEEG, B. C.  Energy storage systems for automobility at the study. 1: Overview and fit [UCRL-52553-VOL-1]  Energy storage system for automobility storage system for automobility storage system for automobility.	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ile propulsion,
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  FICKETT, F. R.  Space applications of superconduct field magnets  PIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  PIELDING, S. J.  Results from the Divertor Injection Experiment / DITE/  FILGES, D.  Experimental studies of neutron mufrom beryllium /n, 2n/ reaction	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication. in CTR blankets	Addition of solar air heaters to a metal building  [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport  [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  FORSBERG, H. C.  Energy storage systems for automobing 1978 study. 1: Overview and file (UCRL-52553-WOL-1)  Energy storage system for automobing storage system specific storage	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ite propulsion, t
PERBER, B. Silicon materials outlook study fo calendar years [NASA-CR-162541] PERRABIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  PICKETT, P. B. Space applications of superconduct field magnets  FIELD, R. L. An average slope factor for solar [ASME PAPER 79-WA/SOL-41] FIELDING, S. J. Results from the Divertor Injection Experiment /DITE/  FILGES, D. Experimental studies of neutron mufrom beryllium /n, 2n/ reaction	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication.	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  PORBMAN, K. H.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORMEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  FORSBERG, H. C.  Energy storage systems for automoli 1978 study. 1: Overview and fit [UCRL-52553-VOL-1]  Energy storage system for automobil 1978 study. 2: Detailed report [UCRL-52553-VOL-2]	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ile propulsion,
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  FICKETT, F. R.  Space applications of superconduct field magnets  PIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  PIELDING, S. J.  Results from the Divertor Injection Experiment / DITE/  FILGES, D.  Experimental studies of neutron mufrom beryllium /n, 2n/ reaction	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication in CTR blankets 25 p0081 A80-19662	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. H.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transportian for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  FORSERG, H. C.  Energy storage systems for automoly 1978 study. 1: Overview and fit (UCRL-5253-WOL-1)  Energy storage system for automoly 1978 study. 2: Detailed report [UCRL-52553-VOL-2]  FOSTER-PEGG, R. W.	a pre-engineered 25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ile propulsion, t 25 p0181 N80-15995
PERBER, B. Silicon materials outlook study fo calendar years [NASA-CR-162541] PERRARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  PICKETT, P. B. Space applications of superconduct field magnets  PIELD, R. L. An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  PIELDING, S. J. Results from the Divertor Injection Experiment /DITE/  PILGES, D. Experimental studies of neutron mufrom beryllium /n, 2n/ reaction  FILIHOV, V. S. Dynamic suppression of ionization	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication in CTR blankets 25 p0081 A80-19662	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  POREMAN, K. H.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  OSMOTICALLY pumped energy transport [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TM-78251]  FORSBERG, B. C.  Energy storage systems for automolity study. 1: Overview and fit [UCRL-52553-VOL-1]  Energy storage system for automobility systems for automobil	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ile propulsion, t 25 p0181 N80-15995  er cycles ants
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance of plasmas and during maintenance of superconduct field magnets  PICKETT, F. R.  Space applications of superconduct field magnets  PIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  PIELDING, S. J.  Results from the Divertor Injection Experiment /DITE/  PILGES, D.  Experimental studies of neutron mufrom beryllium /n, 2n/ reaction  PILIBOV, V. S.  Dynamic suppression of ionization  PILLO, J. A.	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. H.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transportian portion [AIAA PAPER 80-0210]  FORMEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  FORSBERG, H. C.  Energy storage systems for automol 1978 study. 1: Overview and fi [UCRL-52553-WOL-1]  Energy storage system for automobi 1978 study. 2: Detailed report [UCRL-52553-WOL-2]  FOSTER-PEGG, R. W.  Screening evaluation of novel power integrated with gasification platers.	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ite propulsion, t 25 p0181 N80-15995  er cycles
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRABIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  FICKETT, F. R.  Space applications of superconduct field magnets  PIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  PIELDING, S. J.  Results from the Divertor Injection Experiment /DITE/  PILGES, D.  Experimental studies of neutron mu from beryllium /n, 2n/ reaction  PILINOV, V. S. Dynamic suppression of ionization  PILLO, J. A. Fusion energy for hydrogen product	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication. in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484 ion	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  FORSBERG, B. C.  Energy storage systems for automobing study. 1: Overview and fit [UCRL-52553-WOL-1]  Energy storage system for automobing study. 2: Detailed report [UCRL-52553-WOL-2]  FOSTEB-PEGG, R. W.  Screening evaluation of novel power integrated with gasification platers, K. B.	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970  it 25 p0181 N80-15995  er cycles ants 25 p0096 N80-10605
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance of plasmas and during maintenance of superconduct field magnets  PIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  PIELDING, S. J.  Results from the Divertor Injection Experiment /DITE/  PILGES, D.  Experimental studies of neutron mufrom beryllium /n, 2n/ reaction  PILIBOV, V. S.  Dynamic suppression of ionization  PILLO, J. A.  Fusion energy for hydrogen product [BNL-24906]  FINAN, W.	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484 ion 25 p0180 N80-15897	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. H.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transportian portion [AIAA PAPER 80-0210]  FORMEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  FORSBERG, H. C.  Energy storage systems for automol 1978 study. 1: Overview and fi [UCRL-52553-WOL-1]  Energy storage system for automobi 1978 study. 2: Detailed report [UCRL-52553-WOL-2]  FOSTER-PEGG, R. W.  Screening evaluation of novel power integrated with gasification platers.	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ite propulsion, t 25 p0181 N80-15995  er cycles ants 25 p0096 N80-10605  echnology
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  FICKETT, F. R.  Space applications of superconduct field magnets  PIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  PIELDING, S. J.  Results from the Divertor Injection Experiment /DITE/  FILGES, D.  Experimental studies of neutron munfrom beryllium /n, 2n/ reaction  PILINOV, V. S.  Dynamic suppression of ionization  PILLO, J. A.  Fusion energy for hydrogen product [BNL-24906]  FINAH, W.  Wharton annual energy model: Deve	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484 ion 25 p0180 N80-15897	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  FORSBERG, B. C.  Energy storage systems for automobing study. 1: Overview and figural commercial (UCRL-52553-VOL-1)  Energy storage system for automobing study. 2: Detailed report [UCRL-52553-VOL-2]  FOSTEB-PEGG, R. W.  Screening evaluation of novel power integrated with gasification plater and the commercial of the commercial of the commercial contests. W.  West Coast Forum on Appropriate Telephone (PB-298986/1)  FOUGEBR, P.	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 r0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 it 25 p0181 N80-15995  er cycles ants 25 p0096 N80-10605  echnology 25 p0166 N80-14962
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  PICKETT, P. R. Space applications of superconduct field magnets  PIELD, R. L. An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  PIELDING, S. J. Results from the Divertor Injection Experiment /DITE/  PILGES, D. Experimental studies of neutron mun from beryllium /n, 2n/ reaction  PILINOV, V. S. Dynamic suppression of ionization  PILLO, J. A. Pusion energy for hydrogen product [BNL-24906]  FINAR, W. Wharton annual energy model: Deve simulation results	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication. in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484 ion 25 p0180 N80-15897 lopment and	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TM-78251]  FORSBERG, H. C.  Energy storage systems for automol 1978 study. 1: Overview and fi [UCRL-52553-VOL-1]  Energy storage system for automobi 1978 study. 2: Detailed report [UCRL-52553-VOL-2]  FOSTEB-PEGG, R. W.  Screening evaluation of novel powe integrated with gasification plater [FPRI-AP-1002]  FOSTER, K. E.  West Coast Forum on Appropriate Telephology (PB-298986/1)	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0166 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ile propulsion, t 25 p0181 N80-15995  er cycles ants 25 p0096 N80-10605  echnology 25 p0166 N80-14962
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRABIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  FICKETT, F. R.  Space applications of superconduct field magnets  FIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  FIELDING, S. J.  Results from the Divertor Injection Experiment /DITE/  FILGES, D.  Experimental studies of neutron munfrom beryllium /n, 2n/ reaction  FILIBOV, V. S.  Dynamic suppression of ionization  FILLO, J. A.  Fusion energy for hydrogen product [BNL-24906]  FINAH, W.  Wharton annual energy model: Deve simulation results [EPRI-EA-1115]	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484 ion 25 p0180 N80-15897	Addition of solar air heaters to a metal building  [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TM-78251]  FORSBERG, M. C.  Energy storage systems for automobing study. 1: Overview and fingurant of the feasibility of solar energy for residences and light commercial [NASA-TM-78251]  FORSBERG, M. C.  Energy storage systems for automobing study. 2: Detailed report [UCRL-52553-VOL-1]  FOSTER-PEGG, R. W.  Screening evaluation of novel power integrated with gasification place [FPRI-AF-1002]  FOSTER, K. E.  West Coast Forum on Appropriate Temper [PB-298986/1]  FOUGERE, P.  Development of silver-hydrogen cell	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 itle propulsion, t 25 p0181 N80-15995  er cycles ants 25 p0096 N80-10605  echnology 25 p0166 N80-14962
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  PICKETT, P. R. Space applications of superconduct field magnets  PIELD, R. L. An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  PIELDING, S. J. Results from the Divertor Injection Experiment /DITE/  PILGES, D. Experimental studies of neutron mun from beryllium /n, 2n/ reaction  PILINOV, V. S. Dynamic suppression of ionization  PILLO, J. A. Pusion energy for hydrogen product [BNL-24906]  FINAR, W. Wharton annual energy model: Deve simulation results	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication. in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484 ion 25 p0180 N80-15897 lopment and	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  FORSBERG, B. C.  Energy storage systems for automobing study. 1: Overview and fit [UCRL-52553-VOL-1]  Energy storage system for automobing study. 2: Detailed report [UCRL-52553-VOL-2]  FOSTER-PEGG, R. W.  Screening evaluation of novel power integrated with gasification plater [FFRI-AF-1002]  FOSTER, K. E.  West Coast Forum on Appropriate Temper [PB-298986/1]  FOUGDER, P.  Development of silver-hydrogen celler.	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ite propulsion, t 25 p0181 N80-15995  er cycles ants 25 p0096 N80-10605  echnology 25 p0166 N80-14962  lls 25 p0010 A80-11844
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance of plasmas and during maintenance of superconduct field magnets  PICKETT, P. R.  Space applications of superconduct field magnets  PIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  PIELDING, S. J.  Results from the Divertor Injection Experiment /DITE/  PILGES, D.  Experimental studies of neutron mufrom beryllium /n, 2n/ reaction  PILINOV, V. S.  Dynamic suppression of ionization  PILLO, J. A.  Fusion energy for hydrogen product [BNL-24906]  PINAN, W.  Wharton annual energy model: Devesimulation results [EPRI-2A-1115]  FINK, J. F.  Tandem mirror reactors	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication. in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484 ion 25 p0180 N80-15897 lopment and	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  POREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  PORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  PORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  PORSBERG, H. C.  Energy storage systems for automoli 1978 study. 1: Overview and fit [UCRL-52553-VOL-1]  Energy storage system for automoli 1978 study. 2: Detailed report [UCRL-52553-VOL-2]  POSTER-PEGG, R. W.  Screening evaluation of novel power integrated with gasification plate [PPRI-AP-1002]  FOSTER, K. B.  West Coast Porum on Appropriate Telephology [PB-298986/1]  POUGGER, P.  Development of silver-hydrogen cell POULDS, A. W.  Thionine coated electrode for photomological power integrated with gasification plate [PB-298986/1]	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ite propulsion, t 25 p0181 N80-15995  er cycles ants 25 p0096 N80-10605  echnology 25 p0166 N80-14962  lls 25 p0010 A80-11844
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRABIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance of plasmas and during maintenance of superconduct field magnets  PICKETT, F. R.  Space applications of superconduct field magnets  PIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  PIELDING, S. J.  Results from the Divertor Injection Experiment /DITE/  PILGES, D.  Experimental studies of neutron munfrom beryllium /n, 2n/ reaction  PILINOV, V. S.  Dynamic suppression of ionization  PILLO, J. A.  Fusion energy for hydrogen product [BNL-24906]  PINAH, W.  Wharton annual energy model: Deversimulation results [EPRI-EA-1115]  PINK, J. F.  Tandem mirror reactors  FIORE, V. B.	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484 ion 25 p0180 N80-15897 lopment and 25 p0175 N80-15606	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TH-78251]  FORSBERG, B. C.  Energy storage systems for automobing study. 1: Overview and fit [UCRL-52553-VOL-1]  Energy storage system for automobing study. 2: Detailed report [UCRL-52553-VOL-2]  FOSTER-PEGG, R. W.  Screening evaluation of novel power integrated with gasification plater [FFRI-AF-1002]  FOSTER, K. E.  West Coast Forum on Appropriate Temper [PB-298986/1]  FOUGDER, P.  Development of silver-hydrogen celler.	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ile propulsion, t 25 p0181 N80-15995  er cycles ants 25 p0096 N80-10605  echnology 25 p0166 N80-14962  lls 25 p0010 A80-11844  togalvanic cells 25 p0051 A80-17343
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  PICKETT, P. R. Space applications of superconduct field magnets  FIELD, R. L. An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  FIELDING, S. J. Results from the Divertor Injection Experiment /DITE/  FILGES, D. Experimental studies of neutron mun from beryllium /n, 2n/ reaction  FILINOV, V. S. Dynamic suppression of ionization  FILLO, J. A. Fusion energy for hydrogen product [BNL-24906]  FINAR, W. Wharton annual energy model: Deve simulation results [EPRI-2A-1115]  FINK, J. F. Tandem mirror reactors  FIORE, V. B. The reality of on-site fuel cells	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484 ion 25 p0180 N80-15897 lopment and 25 p0175 N80-15606	Addition of solar air heaters to a metal building  [ASME PAPER 79-NA/SOL-33]  POREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TM-78251]  FORSBERG, H. C.  Energy storage systems for automoli 1978 study. 1: Overview and fit [UCRL-52553-VOL-1]  Energy storage system for automobility storage system for automobilit	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ite propulsion, t 25 p0181 N80-15995  er cycles ants 25 p0096 N80-10605  echnology 25 p0166 N80-14962  lls 25 p0010 A80-11844  togalvanic cells
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance of plasmas and during maintenance of superconduct field magnets  PICKETT, P. R.  Space applications of superconduct field magnets  PIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  PIELDING, S. J.  Results from the Divertor Injection Experiment /DITE/  PILGES, D.  Experimental studies of neutron mufrom beryllium /n, 2n/ reaction  PILINOV, V. S.  Dynamic suppression of ionization  PILLO, J. A.  Fusion energy for hydrogen product [BNL-24906]  PINAN, W.  Wharton annual energy model: Deveniumlation results [EPRI-2A-1115]  FINK, J. P.  Tandem mirror reactors  FIORE, V. B.  The reality of on-site fuel cells	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484 ion 25 p0180 N80-15897 lopment and 25 p0175 N80-15606	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TM-78251]  FORSBERG, M. C.  Energy storage systems for automobing study. 1: Overview and ficture for a study. 1: Overview and ficture for study. 2: Detailed report [UCRL-52553-VOL-1]  Energy storage system for automobing study. 2: Detailed report [UCRL-52553-VOL-2]  FOSTER-PEGG, R. W.  Screening evaluation of novel power integrated with gasification place [FPRI-AF-1002]  FOSTER, K. E.  West Coast Porum on Appropriate Telephone for Silver-hydrogen cells  FOULDS, A. W.  Thionine coated electrode for photogalvanic cells	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ile propulsion, t 25 p0181 N80-15995  er cycles ants 25 p0096 N80-10605  echnology 25 p0166 N80-14962  lls 25 p0010 A80-11844  togalvanic cells 25 p0051 A80-17343
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B. Behavior of SORB-AC wafer pumps in plasmas and during maintenance o  PICKETT, P. R. Space applications of superconduct field magnets  FIELD, R. L. An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  FIELDING, S. J. Results from the Divertor Injection Experiment /DITE/  FILGES, D. Experimental studies of neutron munfrom beryllium /n, 2n/ reaction  FILINOV, V. S. Dynamic suppression of ionization  FILLO, J. A. Fusion energy for hydrogen product [BNL-24906]  FINAN, W. Wharton annual energy model: Deve simulation results [EPRI-2A-1115]  FINK, J. P. Tandem mirror reactors  FIORE, V. B. The reality of on-site fuel cells  FISCHER, A. K. Experimental two-phase liquid-meta.	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484 ion 25 p0180 N80-15897 lopment and 25 p0175 N80-15606 25 p0059 A80-17887	Addition of solar air heaters to a metal building  [ASME PAPER 79-NA/SOL-33]  POREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TM-78251]  FORSBERG, H. C.  Energy storage systems for automoli 1978 study. 1: Overview and fit [UCRL-52553-VOL-1]  Energy storage system for automobility storage system for automobilit	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ile propulsion, t 25 p0181 N80-15995  er cycles ants 25 p0096 N80-10605  echnology 25 p0166 N80-14962  lls 25 p0010 A80-11844  togalvanic cells 25 p0051 A80-17343
PERBER, R.  Silicon materials outlook study fo calendar years [NASA-CR-162541]  PERRARIO, B.  Behavior of SORB-AC wafer pumps in plasmas and during maintenance of plasmas and during maintenance of superconduct field magnets  FICKETT, F. R.  Space applications of superconduct field magnets  FIELD, R. L.  An average slope factor for solar [ASME PAPER 79-WA/SOL-41]  FIELDING, S. J.  Results from the Divertor Injection Experiment /DITE/  FILGES, D.  Experimental studies of neutron mufrom beryllium /n, 2n/ reaction  FILINOV, V. S.  Dynamic suppression of ionization  FILLO, J. A.  Fusion energy for hydrogen product [BNL-24906]  FINAN, W.  Wharton annual energy model: Deveniumlation results [EPRI-2A-1115]  FINK, J. F.  Tandem mirror reactors  FIORE, V. B.  The reality of on-site fuel cells  FISCHER, A. K.  Experimental two-phase liquid-meta magnetohydrodynamic generator pr	r 1980-1985 25 p0155 N80-14492 contaminated H2 f plasma machines 25 p0082 A80-19672 ivity - High 25 p0084 A80-20128 insolation 25 p0067 A80-18572 n Tokamak 25 p0054 A80-17754 ltiplication in CTR blankets 25 p0081 A80-19662 instability 25 p0043 A80-16484 ion 25 p0180 N80-15897 lopment and 25 p0175 N80-15606 25 p0059 A80-17887	Addition of solar air heaters to a metal building [ASME PAPER 79-WA/SOL-33]  FOREMAN, K. M.  Experimental demonstration of the diffuser-augmented wind turbine  FORMILLER, D. J.  Osmotically pumped energy transport [AIAA PAPER 80-0210]  FORNEY, J. A.  Computer program for assessing the feasibility of solar energy for residences and light commercial [NASA-TM-78251]  FORSBERG, M. C.  Energy storage systems for automobing study. 1: Overview and ficture for a study. 1: Overview and ficture for study. 2: Detailed report [UCRL-52553-VOL-1]  Energy storage system for automobing study. 2: Detailed report [UCRL-52553-VOL-2]  FOSTER-PEGG, R. W.  Screening evaluation of novel power integrated with gasification place [FPRI-AF-1002]  FOSTER, K. E.  West Coast Porum on Appropriate Telephone for Silver-hydrogen cells  FOULDS, A. W.  Thionine coated electrode for photogalvanic cells	a pre-engineered  25 p0066 A80-18566  concept 25 p0007 A80-11643  rt system 25 p0064 A80-18378  e economic single family applications 25 p0156 N80-14501  bile propulsion, indings 25 p0105 N80-10970 ile propulsion, t 25 p0181 N80-15995  er cycles ants 25 p0096 N80-10605  echnology 25 p0166 N80-14962  lls 25 p0010 A80-11844  togalvanic cells 25 p0073 A80-18749

energy applications, phases 1 and 2 [SAND-79-8183] 25 p0146 N80-13698

PRANKS, L. A. FURMAN, E. R. Laboratory evaluation of two laser fluorosensor Candidate thermal energy storage technologies for systems solar industrial process heat applications [ NASA-TM-81380] 25 p0031 A80-12964 25 p0171 N80-15560 PRANTA, G. PURTH, H. P. Commercializing solar architecture
[SERI/TP-62-113] 25 p0161 N80-14548 Low-aspect-ratio limit of the toroidal reactor -The spheromak PREED, R. K. 25 p0058 A80-17876 Energy from the West: Energy resource development systems report. Volume 1: Introduction and general social controls PUSSMANN, G. Accumulation of impurities and stability behaviour in the high-density regime of Pulsator [PB-299177/6] 25 p0 152 N80-144 Energy from the West: Energy resource development 25 p0152 N80-14463 25 p0054 A80-17759 systems report. Volume 2: Coal
[PB-299178/4]
Energy from the West: Energy resource development
systems report. Volume 3: Oil shale
[PB-299179/2]
Energy from the West: Energy resource development
systems report. Volume 4: Uranium
[PB-299180/0]
Energy from the West: Energy resource development
systems report. Volume 5: Oil and natural gas
[PB-299181/8]
PB-299181/8]
FREGUY resource development systems report. Volume 2: Coal G GABANO, J. P. Lead oxides-lithium cells 25 p0012 A80-11859 Effect of kinetics of thermonuclear reaction products upon D-T plasma parameters 25 p0007 A80-11544 Optimization of argon admixture in deuterium fusion with non-stationary action of plane shock [PB-299181/8] 25 p0152 N80-1444 Energy from the West: Energy resource development systems report. Volume 6: Geothermal 25 p0007 A80-11546 [PB-299182/6] 25 p0152 N80-14468 GACEK. A. PREEDNAN, D. Effect of kinetics of thermonuclear reaction Energy and economic assessment of anaerobic digesters and biofuels for rural waste management products upon D-T plasma parameters 25 p0007 A80-11544 GADDIS, J. L.

Energy conservation through point source recycle with high temperature hyperfiltration

[FB-299183/4] 25 p0180 N80-19 [PB-296523/4] 25 p0094 N80-10398 PREESE, K. B.
Recent developments in linear theta-pinch and laser-heated solenoid research 25 p0180 N80-15688 25 p0055 A80-17825 GAINES, G. B. Development of an accelerated test design for On-line tests of organic additives for the predicting the service life of the solar array inhibition of the precipitation of silica from hypersaline quethermal brine. 2: Tests of at Mead, Nebraska [NASA-CR-162534] hypersaline geothermal brine. 2: Tests of nitrogen-containing compounds, silanes, and 25 p0154 N80-14483 GAINES, G. L., JR.

Coulombic effects in the quenching of photoexcited

Tris/2,2°-bipyridine/ruthenium/II/ and related

complexes by methyl viologen nitrogen-containing compounds additional ethoxylated compounds 25 p0110 N80-11567 PRIEDMAN, P. S.
Determination of the technical and economic feasibility of luminescent solar concentrators
[SAND-79-7005] 25 p0100 N80-10650 25 p0040 A80-15358 GALLANT, I. E.
Development of optical waveguides for a PRIEDMANN, P. P.
Aeroelastic stability and response of horizontal
axis wind turbine blades power-related application 25 p0036 A80-14596 GALBRAITH, D. L.

The effect of classical and anomalous transport on the performance of Tandem Mirror reactors 25 p0032 A80-13116 PRIEMAN, E. A.
MHD stability limits on high-beta tokanaks 25 p0079 A80-19596 25 p0054 A80-17797 GALLAGHER, R. J.
Solar thermal central receiver systems
[ASME PAPER 79-WA/HT-38] 25 pt PRIGO, A. A.

Turbomachinery options for an underground pumped hydroelectric storage plant

25 po 177 N80-1 25 p0070 A80-18596 GALLAGHER, S. P. [CONF-790803-50] 25 p0177 N80-15629 Screening evaluation of electric power cycles PUJII, T. integrated with coal gasification plants
[ASME PAPER 79-WA/ENER-4] 25 p0071 A80-18644 Studies on carbon dioxide cycles for power generation. I - Fundamental condensation cycles GALLIKEB, J. P.
Federal Energy Data System (FEDS) statistical 25 p0083 A80-19716 summary update [DOE/EIA-0192] Photoelectrochemical hydrogen production 25 p0177 N80-15630 25 p0052 A80-17580 GALLO, P. Commercialization task force for high Btu Inertial confinement fusion research at Osaka gasification [TID-28849] 25 p0057 A80-17868 25 p0135 N80-13286 PUJITA, T. GALLOWAY, L.

The water splitting light reaction of chlorophyll
a dihydrate. Visible light solar energy The effects of regional insolation differences upon advanced solar thermal electric power plant performance and energy costs
[ASME PAPER 79-WA/SOL-15] conversion after the primary reaction in plant 25 p0069 A80-18588 photosynthesis PUKUDA, J. 25 p0133 N80-13188 Gasification of solid waste in a fluidized bed GALLOWAY, T. R. reactor with circulating sand The challenge of efficiently retorting very 25 p0074 A80-18868 nonuniform beds of oil shale rubble PULTON, R. L.
Geothermal energy for industrial application 25 p0085 A80-20453 [LBL-8919] 25 p0111 N80-11579 Performance characteristics of solar regenerators PUBICE, G. 25 p0028 A80-12787 Progress and development trends in coal gasification and liquefaction technologies - New gasification methods developed on a laboratory GAMESAN, 84 R.
Solar energy availability over India for maximum utilisation or large scale 25 p0023 A80-12740 25 p0031 A80-12946 GANGADHARAN, A. C.
Interim structural design standard for solar PUBLONG, D. B.
Evaluation of feasibility of prestressed concrete
for use in wind turbine blades

25 p0170 N80-15553

[ NA SA-CR-159725 ]

PERSONAL AUTHOR INDEX GLASS, B. B.

GARBAN, C.	<b></b>	GERISCHER, H.	
Experimental studies of interaction and processes in laser fusion	CIABSPOLC	Schottky barrier height, photovoltage and photocurrent in liquid-junction solar cells	
GARCIA, H. 25 p00	57 A80-17864	25 p0087 A80-20	723
Production of sugarcane and tropical gra renewable energy source	sses as a	GERNHARDT, J.  Testing and performance of the 30 kA ohmic heating system for ASDEX	g
[DOF/CS/5912-T1] 25 p01	168 N80-15277	25 p0078 A80-19	585
GARDINER, G.  Energy saving in injection molding [NEL-662] 25 p01	126 NOA_12219	GERT2, J. Integral modeling of MHD channel boundary layers	
GARDNER, J. H.	136 N80-13318	[AIAA PAPER 80-0175] 25 p0064 A80-18. GETOFF, H.	
Inertial confinement fusion at NRL 25 p00	56 A80-17861	Photophysical and chemical processes affecting the stability of the thiazine dye-iron system	e
GARG, H. P. Effect of boosters on the performance of		25 p0033 A80-13 GHASSEHI, No.	198
plate collector		Environmental assessment report: Lurgi coal	
25 put Solar energy flat plate collectors - Opt	123 A80-12744 :imization	gasification systems for SNG [PB-298109/0] 25 p0120 N80-12	204
of air gap 25 p00	23 480-12745	GHEBWALA, T. R.  A 30-ps Josephson current injection logic /CIL/	
Review of thermal storage materials from point of solar energy application	the view	25 p0030 A80-128	853
	25 A80-12756	Role of oxide layer in Schottky barrier solar cell	
Performance of solid compound parabolic concentrators in series		25 p0025 A80-12 Effect of concentrated sunlight on the various parameters of the p-n junction solar cell	701
. 25 p00	24 A80-12749	25 p0025 A80-12	764
GARLAND, R. V. Novel power generation cycles using coal	. qas	GILBERT, B. L. Experimental demonstration of the	
	71 A80-18645	diffuser-augmented wind turbine concept 25 p0007 A80-11	643
integrated with gasification plants		GILL, R. D.	043
GARSIDE, B. K.	196 N80-10605	Results from the Divertor Injection Tokamak Experiment /DITE/	
The A-I/1-y/B-I/y/C-IIID-VI/2x/E-VI2/1-x pentenary alloy system and its applica		GILLILAND, H.	754
photovoltaic solar energy conversion	46 A80-16786	Energy from the West: Energy resource development systems report. Volume 1: Introduction and	t
GASKELL, T. F.	•	general social controls	
Climatic variability, marine resources a offshore development	TII O	[PB-299177/6] 25 p0152 N80-144 Energy from the West: Energy resource development	
GATTI, A. 25 p01	31 N80-12689	systems report. Volume 2: Coal [PB-299178/4] 25 p0152 N80-144	
Sintered silicon nitrode recuperator fab	rication 67 N80-15263	Energy from the West: Energy resource development systems report. Volume 3: Oil shale	
GAUSSENS, P.		[PB-299179/2] 25 p0152 N80-144	
The present status of coal gasification the 14th World Gas Congress Toronto 19	79	Energy from the West: Energy resource development systems report. Volume 4: Oranium	t
GAVRILKO, S. A. 25 p00	50 A80-17222	[PB-299180/0] 25 p0152 N80-144 Energy from the West: Energy resource development	
Change in rate of conducting-piston moti characteristics of field-diffusion pro		systems report. Volume 5: Oil and natural gas	
a linear electromechanical energy conv	erter	[PB-299181/8] 25 p0152 N80-144 Energy from the West: Energy resource development	
GAY, B. C. 25 p00	83 A80-20069	systems report. Volume 6: Geothermal [PB-299182/6] 25 p0152 N80-144	468
Review of industrial participation on th lithium/iron sulfide battery developme		GIBER, J. Study of corrosion and its control in aluminum	
	64 N80-14573	solar collectors	
electrolyte	•	[COO-2934-7] 25 p0129 N80-126 GINLEY, D. S.	203
GRISE, R. F.	76 N80-15614	Principles of photoelectrochemical solar energy conversion	
Electric heat - The right price at the r 25 p00	ight time 62	25 p0074 A80-189	990
GEIST, J. Solar cell spectral response characteriz		Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures	
25 p00	37 A80-14685	25 p0008 A80-118	816
GBLB, G. E. Application of solar and fuel cell techn	ology to	GITTLEMAN, J. I.  Textured silicon - A selective absorber for solar	
industrial users 25 p00	37 A80-14707	thermal conversion 25 p0034 A80-139	980
GELIN, P. Technico economic study of the use of hy	drogen and	Materials for solar thermal conversion [COO-4557-1] 25 p0143 N80-136	
methanol for road transport 25 p00	42 A80-15993	GLADD, N. T. Drift wave stability and transport theory in	
GEORGAKIS, C. A single coal particle gasification mode	1	fusion systems 25 p0056 A80-178	an e
. 25 p00	88 A80-20884	GLAESEE, P.	,40
GRORGE, J. H. Optimal oil yield from in situ oil shale		The financing problems of Europe's gas industry 25 p0032 A80-131	174
GEORGE, B. A.	38 A80-14795	GLASEE, P. E. Earth benefits of solar power satellites	704
Phosphoric acid fuel-cell electrocatalys pyropolymer ceramic composites	•	GLASS, R. B.	191
GERICH, J. W.	12 480-11861	Superheated steam generation in a Fresnel lens concentrating collector	
Non-tracking inflated cylindrical solar [UCRL-82721] 25 p01	concentrator 59 N80-14528	[ASME PAPER 79-WA/SOL-21] 25 p0067 A80-185	i6 <b>7</b>

GLASSER, A. H. MHD stability limits on high-beta	tokamaks 25 p0054 A80-17797	GORSKI, E.  Nuclear fusion by cylindrical ion	implosion 25 p0058 A80-1787
GLASSEY, C. B. Methods of estimating the reliabil:	-	GOSS, J. R. Pilot plant gasification test on 1	biomass fuels
	25 p0098 N80-10623	[PE-299077/8] GOTO, S. New approach for Vlasov equilibri	25 p0151 N80-14272
GLASSMAN, I.  Pundamental and semi-global kinetic hydrocarbon combustion	c mechanisms of	relativistic electron beam in a	
[COO-4272-3] GLOCK, B.	25 p0165 N80-14587	GOTTARDI, H. Accumulation of impurities and st	ability behaviour
Accumulation of impurities and stated in the high-density regime of Pu		in the high-density regime of P	ulsator 25 p0054 A80-17759
GLUCHOWSKI, W. Optimization of neutron yield in c	-	Impact of new instrumentation on a research	advanced turbine
explosion-induced compression	25 p0007 A80-11545	[NASA-TH-79301] GRANGER, La	25 p0166 N80-1513
GLUCKMAN, M. J.  The near term potential for gasifi	•	Economics of Pullman Kellogg's ma FGD system	- <del>-</del>
cycle electric power generation		CDANGET CH. C. C	25 p0014 A80-1196
Novel power generation cycles usin	25 p0015 180-11970 g coal gas 25 p0071 180-18645	GRANQVIST, C: G.  Spectrally selective surfaces wit comprised of ultrafine metal parts.	rticles
GOBRICHT, J. Schottky barrier height, photovolt	age and	[AED-CONF-78-212-004] GRAHT, M. A.	25 p0115 N80-1162
photocurrent in liquid-junction		An estimate of the resource poten Zealand geothermal fields for p	
The United States programme in hea		GRASSMANN, P.	
GORBEL, F.	25 p0058 A80-17873	The thermal triode	25 p0037 A80-1467
Lithium inorganic electrolyte batt [AD-A073858] GOGNA, P. R.	ery development 25 p0.157 N80-14505	GRAVES, R. L.  Characterization of operating con gas/water heat recovery steam g	ditions for
Selective black nickel coatings on by chemical conversion		[ORNL/TH-6622] GRAY, J. W.	25 p0176 N80-1562
GOLDEBERG, J.	25 p0060 A80-18126	Ignitron switching problems assoc large reversed field pinch expe	riment
Global options for short-range alt strategies		GREAVER, W. C.	25 p0081 A80-1962
GOLDEN, T. S.	25 p0048 A80-17129	Hydrogen-powered vs. battery-powe	red automobiles 25 p0033 A80-1319
Baltimore applications project [NASA-TM-80577] GOLDSTRIM, D. J.	25 p0133 N80-12957	GREBERSHCHIKOV, S. B.  Current equilibrium and effective L-2 stellarator plasma	ion charge in
Wastewater treatment in coal conve		•	25 p0055 A80-1782
GOLDSTEIN, N. B.	25 p0104 N80-10700	Non-linear theory of collective p	
Geothermal energy development from Trough to the High Cascades		laser-pellet interaction and so	liton generation 25 p0057 A80-1787
GOLDSTRIN, R. J.	25 p0171 N80-15568	GREEN, B. Implementation of state solar inc	entives: A
Heat transfer to a melting solid w to thermal energy storage system	ns	preliminary assessment [SEBI/TR-51-159]	25 p0158 N80-1452
GOLDSTEIR, S. A. Inertial confinement fusion at NRL	25 p0036 A80-14667	The turnover times and pool sizes photosynthetic hydrogen product	
	25 p0056 A80-17861	GREENBERGER, M.	25 p0029 A80-1281
Photoelectric parameters of photoe converters in relation to illumi	Lnation	Assessing energy policy models - future directions	
GOMBIA, E.	25 p0044 A80-16627	GREENE, J. N.	25 p0009 A80-1183
Measurements of minority-carrier d in heterojunction solar cells	_	MHD stability limits on high-beta	tokamaks 25 p0054 A80-1779
GONKALE, S. D. Techno-economic feasibility analys	25 p0086 A80-20717	GREENSTEIN, M.  Foam solar sea power: A physical	investigation 25 p0122 N80-1254
cells with and without concentra lighting	etors for rural	GREGORY, E. Superconducting composites fabric	-
GONZALEX-MOLINA, C.	25 p0026 A80-12773	properties	25 p0040 A80-1551
Production of sugarcane and tropic renewable energy source	cal grasses as a	GREK, B. Evidence of nonlinear processes f	•
[DOE/CS/5912-T1] GOODALL, D. B. J.	25 p0168 N80-15277	of CO2 laser-irradiated targets	
Results from the Divertor Injection Experiment /DITE/		GRENOH, L. P. The automated array assembly task	of the low-cost
GOODMAN, A. C.	25 p0054 A80-17754	silicon solar array project, ph [NASA-CR-162429]	ase 2 25 p0109 N80-1156
Energy program at the Johns Hopkin Applied Physics Laboratory [PB-310245/7]	ns University 25 p0179 N80-15648	GRESHO, P. H. Simulation of LNG vapor spread an finite element methods	d dispersion by
GORODETSKII, S. H.	-	[UCRL-82441]	25 p0168 N80-1528
Photoelectric parameters of photoe converters in relation to illumi			

PERSONAL AUTHOR INDEX BABERSTICH, A.

GRETHER, D. Circumsolar radiation data for ce	ntral receiver	GUENTHER, B. Calculation of steam generation with parabolic
simulation [LBL-8371]	25 p0131 N80-12647	solar collectors
GRETBER, D. P.	-	GUGGI, D. 25 p0039 A80-1532
Analysis of the California solar [LBL-7860-VOL-2] Measurement of circumsolar radiat	25 p0127 N80-12589	Diffusion of tritium in neutron-irradiated microcrystalline Beta-Li5AlO4 25 p0081 A80-1966
[LBI-8391] GREYWALL, M. S.	25 p0133 N80-12982	GUBA, H. R.
Effect of velocity overshoot on t magnetohydrodynamic subsonic di	ffusers	Economics/reliability trade-offs in materials for various coal conversion and utilization processes 25 p0016 A80-1197
[NASA-TH-79305] GRIBBLE, R. P.	25 p0166 N80-14922	GUHA, S. H. Study of photochemical processes in the
Recent developments in linear the laser-heated solenoid research	ta-pinch and	ferrous-thionine system
	25 p0055 A80-17825	GUILLAMEUX, P. 25 p0027 A80-1278
GRIGOREVA, G. M. Solar panels exposed to cosmic ra		Work on laser interaction and implosion at Centre d'Etudes de Limeil
GRIGOROV, G. I.	25 p0008 A80-11825	GUINET, P. 25 p0057 A80~1786
Ion-stimulated sorption of nitrog continuously deposited titanium	film	Hydrogen storage by means of reversible magmesium alloy
GRINES, P.	25 p0051 A80-17252	GUNN, T. L. 25 p0041 A80-1599
Zinc-bromine battery studies	25 p0010 A80-11845	Energy optimal use of waste paper [C00-2893-9] 25 p0174 N80-1559
GRIMM, R. C.  MHD stability limits on high-beta	tokamaks	GUPTA, A. Performance studies on uniform illumination type
GRIMM, U.	25 p0054 A80-17797	nontracking concentrators
Fluidized-bed combustion of high (METC/RI-79/4)		GUPTA, B. K. 25 p0026 A80-1276
GROBBAN, J.	25 p0093 N80-10386	A new approach to low cost large area selective surfaces for photothermal conversion
Alternative jet aircraft fuels	25 p0091 N80-10209	25 p0003 A80-1084 Optical and electrical investigations on annealed
GROBMAN, J. S. Preparing aircraft propulsion for	a new era in	indium oxide selective coatings produced by spray pyrolysis
energy and the environment	25 p0053 A80-17737	GUPTA, G. D. 25 p0023 A80-1274
GROEPPEL, D.  The conversion of ethylene glycol	with air in	Interim structural design standard for solar energy applications, phases 1 and 2
alkaline fuel cells	25 p0011 A80-11850	[SAND-79-8183] 25 p0146 N80-1369 GUPTA, H. C.
GROWLI, K. The distribution of sulfur and or		An investigation of experimental performance of a compound parabolic concentrator
various fractions of peat - Ori- coal		25 p0023 A80-1274 A parametric study of solar thermal power plant
GROS, J.	25 p0074 A80-18833	25 p0024 A80-1275 Experimental investigations of an intermittent
Commercialization strategy report systems	*	ammonia-water solar refrigerator 25 p0028 A80-1278
[TID-28844-DRAFT] Commercialization strategy report systems	25 p0161 N80-14543 for large wind	Performance characteristics of solar regenerators 25 p0028 A80-1278 GUPTA, M. K.
[TID-28843-DRAFT] GROSS, M. L.	25 p0161 N80-14544	Development of space quality silicon solar cells at B.A.R.C.
Tetrachlorodibenzo-p-dioxin quant: stack-collected coal fly ash		GUPTA, S. K. 25 p0025 A80-1276.
<del>-</del>	25 p0053 A80-17710	Development of space quality silicon solar cells
GRUBBS, D. H. A solar energy system with annual		at B.A.R.C. 25 p0025 A80-1276.
GRUBER, R.		GUPTA, Y. P. Use of geothermal energy for desalination in New
Dependence of ideal MHD beta limit density and pressure profiles		Mexico: A feasibility study [PB-299271/7] 25 p0179 N80-1564
GRUBER, R. P.	25 p0054 A80-17790	GURUSWAHY, V.  The photo-electrochemical production of C-C bonds
Self-reconfiguring solar cell syst [NASA-CASE-LEW-12586-1]	tem 25 p0153 N80-14472	from carbon dioxide 25 p0004 A80-1084
GRYZINSKI, M. Nuclear fusion by cylindrical ion	_	GURWELL, W. E. Methodology for identifying materials constraints
GUBANKOV, V. N.	25 p0058 A80-17874	to implementation of sclar energy technologies
Effect of microwave radiation on to voltage-current characteristics		GUTBERLET, L. C.
variable-thickness Josephson mic	crobridge	Catalyst development for coal liquefaction [EPRI-AP-1084] 25 p0136 N80-13293
GUBAREV, A. V.		GUTJAHR, M. A. Improvement of the high-rate discharge behaviour
Some problems with variable operat generator		of the mickel electrode 25 p0010 A80-1184
GUCERI, S. I.	25 p0035 A80-14530	• •
Modeling of a thermal wall panel to change materials		HABBERSTICE, A.
	25 p0021 A80-12439	LASL toroidal reversed-field pinch programme
GUCKERT, L. G. Oil recovery by carbon dioxide in: [ORC-5301-34]	jection 25 p0108 N80-11545	25 p0054 A80-17809

HAEPELE, W. Models of worldwide energy demand and consumption 25 p0002 A80-10228	BAMILION, B. I.  Cost analysis of packed beds for thermal energy  storage
Energy and climate: A review with emphasis on global interactions	[CAES-11] 25 p0145 880-13687
25 p0 131 N80-12677 HAEFFELE, W.	Mission analysis for the Pederal fuels from biomass program. Volume 3: Peedstock
Global perspectives and options for long-range energy strategies	availability [SAN-0115-T1] 25 p0168 N80-15276
25 p0048 A80-17130  HAGENA, O. F.  Construction and test of a high power injector of	Novel gas turbine cycles with coal gasification
hydrogen cluster ions 25 p008C A80-19618	[ASHE PAPER 79-WA/ENER-6] 25 p0071 a80-18646 HAMMERSHAIB, B. The controlling production mechanism of methane
HAGENHULLER, P. Use of reversible hydrides for hydrogen storage	gas from coalbeds 25 p0085 A80-20499
25 p0042 A80-15991 HAGBY, G.	Energy system in the Par West: Impacts of the
Commercialization strategy report for electric and hybrid vehicles	National Energy Act of 1978 [UCRL-52754] 25 p0140 N80-13638
[TID-28858-DRAFT] 25 p0166 N80-14972 HAHN, D. R.	Quality assurance in alternative energy sources
Cooling aluminum molds using heat pipes [BDX-613-2039-REV] 25 p0108 N80-11384 HALL, D. O.	[RHO-SA-107] 25 p0095 N80-10504 HAMMOHD, R. H. An electrochemical heat engine for direct solar
Photochemical conversion and storage of solar energy 25 p0009 A80-11829	energy conversion 25 p0061 A80-18131
HALL, F. P. Hydrogen-electric power drives	HAMPSON, N. A.  The methanol-air fuel cell - A selective review of
[SLAC-PUB-2203] 25 p0113 N80-11604 HALL, K. J.	methanol oxidation mechanisms at platinum electrodes in acid electrolytes
Thionine coated electrode for photogalvanic cells 25 p0051 A80-17343	25 p0042 A80-16146
HALL, R. B. Emissions assessment of conventional stationary combustion systems. Volume 1: Gas- and	Integral cell scale-up and performance verification [EPRI-EM-1134] 25 p0141 N80-13646
oil-fired residential heating sources [PB-298494/6] 25 p0131 N80-12637	HANKINS, J. D. Development and testing of the Junkeeper Control Corporation integrated programmable electronic
HALL, T. A. Energy from the West: Energy resource development	controller and hydronics package [NASA-TM-78244] 25 p0155 N80-14495
systems report. Volume 1: Introduction and general social controls	Development and testing of the Rho Sigma Incorporated microprocessor control subsystem
[PB-299177/6] 25 p0152 N80-14463 Energy from the West: Energy resource development systems report. Volume 2: Coal	[NASA-TH-78246] 25 p0156 N80-14496 Development and testing of the Solar Control Corporation modular controller and Solar Control
[PB-299178/4] 25 p0152 N80-14464 Energy from the West: Energy resource development	Corporation modular controller and Solarstat subsystem [NASA-TH-78243] 25 p0156 N80-14498
systems report. Volume 3: 0il shale [PB-299179/2] 25 p0152 N80-14465	Development, testing and certification of the sigma research, maxi-therm-S-101 thermosyphon
Energy from the West: Energy resource development systems report. Volume 4: Uranium	heat exchanger [NASA-TM-78245] 25 p0156 N80-14499
[PB-299180/0] 25 p0152 N80-14466 Energy from the West: Energy resource development	Satellite Power Systems (SPS) concept definition
systems report. Volume 5: Oil and natural gas [PB-299181/8] 25 p0152 N80-14467 Energy from the West: Energy resource development	study. Volume 4: SPS point design definition [NASA-CR-150683] 25 p0119 N80-12106 HANLEY, G. M.
systems report. Volume 6: Geothermal [PB-299182/6] 25 p0152 N80-14468	The satellite power system concept and program [SAWE PAPER 1305] 25 p0086 A80-20643
HALOTIER, D. Hydrogen storage by means of reversible magnesium	HANSON, B. J.  The electric trolley bus - Revisited
alloy 25 p0041 &80-15990	HANSON, D. 25 p0002 A80-10321
HALOW, J. S.  Fluidized-bed combustion of high sulfur coals [METC/RI-79/4] 25 p0093 N80-10386	Survey of the research into energy-economy interactions. Volume 1: Survey
HAM, J.  Commercialization strategy report for recovery of	[HCP/I6346-01/1-VOL-1] 25 p0139 N80-13633 HANSON, J.  The Bullaren lineament, southwestern Sweden - A
natural gas from unconventional sources [TID-28848-DRAFI] 25 p0168 N80-15287	possible site for geothermal heat extraction 25 p0075 A80-19049
HAMASAKI, S. Drift wave stability and transport theory in	HANSON, J. M Tidal pressure response as a reservoir engineering
fusion systems 25 p0056 A80-17846	tool [UCRL-83012] 25 p0141 N80-13647
HAMERSHA, J. W. Coal sulfur measurements  [PR-200575/4] 25 204/0 NO. 4520/4	HARDER, C. E.  Doublet III neutral beam injection system overview
[PB-299575/1] 25 p0169 N80-15294  HAMBS, M. D.  Some aspects of sodium-sulphur batteries	and status report  25 p0079 A80-19599  HARDY, D. M.
25 p0013 A80-11866 Development of a sodium/sulphur battery for rail	Wind resource analysis [SEBI/TE-36-088] 25 p0132 N80-12710
applications 25 p0031 A80-13003	HARKHESS, S. Impact of technology and maintainability on
HAMILTON, G. W. Tandem mirror reactors	economic aspects of tokamak power plants 25 p0059 A80-17884
25 p0059 A80-17887  HAMILTON, L. D.  Coal conversion technologies - Some health and	·
environmental effects 25 p0006 A80-11369	
20 Fordo 200 11303	

PERSONAL AUTHOR INDEX HBIGES, H. H.

HARRAR, J. E.	
	HASSELBERG, G.
On-line tests of organic additives for the	What is the mechanism responsible for the
inhibition of the precipitation of silica from	precursors of internal disruptions
hypersaline geothermal brine. 2: Tests of	25 p0054 A80-17807
nitrogen-containing compounds, silanes, and	HATTORI, H.
additional ethoxylated compounds	Activity tests of various catalysts for
[UCID-18195] 25 p0110 N80-11567	hydrocracking of coal by means of high pressure
Using surface waters for supplementing injection	differential themselves of high plessure
at the Calter Co. Carthernal Biola (CCC)	differential thermal analysis
at the Salton Sea Geothermal Field (SSGF),	25 p0019 A80-12244
Southern California	HAUK, R.
[UCRL-83011] 25 p0124 N80-12561	Rapid devolatilization and partial gasification of
HABRIGAN, W. C., JR.	coal in an entrained dust reactor
New development and applications in composites;	25 p0002 A80-10226
Proceedings of the Symposium, St. Louis, No.,	HAUSER, J. R.
October 16, 17, 1978	Novel concentrator photovoltaic converter system
25 p0040 A80-15501	development
HARRIS, A. W.	[SAND-79-7040] 25 p0143 N80-13661
Operational and parameter studies of a	BAVEN, K. F.
solar-powered absorption cycle system with	
	Characterization of solid-waste conversion and
internal latent energy storages	cogeneration systems
[ASME PAPER 79-WA/SOL-27] 25 p0067 A80-18568	[IBL-7883] 25 p0141 N80-13648
HARRIS, H. G.	HAWRYLUK, R. J.
Optimal oil yield from in situ oil shale retorting	Volt-second consumption during the start-up phase
25 p0038 A80-14795	of PLT
HARRISON, J. S.	25 p0040 A80-15532
Environmental protection in the processing of coal	HAY, J. B.
- The utilization or disposal of coal processing	Calculation of monthly mean solar radiation for
residues	horizontal and inclined surfaces
25 p0030 A80-12942	25 p0028 A80-12817
HARRISON, T. D.	
	HAY, R. D.
Design considerations for a proposed passive	Flywheel energy storage interface unit for
vacuum solar annular receiver	photovoltaic applications
[SAND-78-0982] 25 p0111 N80-11582	[COO-4094-44] 25 p0175 N80-15609
Midtemperature Solar Systems Test Facility (MSSTF)	HAYES, G. B.
project test results: Phase 4A MSSTP system	Solar access law. Protecting access to sunlight
operation	for solar energy systems
[SAND-78-1088] 25 p0114 N80-11613	[PB-296532/5] 25 p0117 N80-11633
HART, S. R., JR.	HAZZARD, G.
SRC solids - A preferred compliance boiler fuel	The electrochemical characteristics of iron
25 p0015 A80-11968	sulphide in immobilized salt electrolytes
HARTLEY, D. G.	
Some aspects of sodium-sulphur batteries	25 p0013 A80-11862
	HRALEY, H. M.
25 p0013 A80-11866	MSPC solar heating and cooling high speed
HARTLEY, J. N.	performance (Hisper) code validation
Methodology for identifying materials constraints	[NASA-CR-161323] 25 p0096 N80-10604
to implementation of solar energy technologies	BEATH, R. A.
[PNL-2711] 25 p0098 N80-10625	Transmission of tidal energy over a plateau
HARTHAH, C. D.	25 p0072 A80-18721
Design of the International Energy Agency 500 kWe	HECHLER, K.
distributed and laster relam themsel allowed	Toward the endless frontier: History of the
distributed-collector solar thermal-electric	
	Committee on Science and Technology 1959 - 1979
powerplant	Committee on Science and Technology 1959 - 1979
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, R. S.	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994 BECKES, A. A.
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, B. S. Frontiers in energy demand modeling	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BECKES, A. A. Closed-cycle hydride engines
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, R. S. Frontiers in energy demand modeling 25 p0009 A80-11830	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BECKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, R. S. Prontiers in energy demand modeling 25 p0009 A80-11830 HARTMETT, J. P.	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BECKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, B. S. Prontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Pestschrift for E. R.	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BECKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S. The relative value of energy derived from
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, E. S. Prontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  HECKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  HECKLINGER, B. S.  The relative value of energy derived from municipal refuse
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, R. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTMETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BECKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S. The relative value of energy derived from
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, B. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVEY, B. B.	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BECKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, B. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BEDDEH, K.
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, R. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTMETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BECKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, B. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BEDDEH, K.
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, B. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVEY, B. B.	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BECKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, B. S. The relative value of energy derived from municipal refuse 25 p0051 A80-17352  BEDDEN, K. Rapid devolatilization and partial gasification of
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, E. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. F. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVYY, E. B. Commercialization strategy report for hydrothermal	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, B. S. Prontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVEY, E. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BECKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, B. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  HEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, B. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Pestschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVET, B. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASANALM, H. A.	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BECKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse 25 p0051 A80-17352  BEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor 25 p0002 A80-10226  BEDRICK, C. L.
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, R. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTMETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVYY, B. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASANAIN, B. A. Adsorption of hydrogen sulfide in shale retorted	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  EDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  EDDECK, C. L.  The Elmo Bumpy Torus /EBT/ reactor
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, B. S. Prontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVEY, E. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASANAIN, M. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKRS, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  BEDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592  HARTHAN, B. S.  Frontiers in energy demand modeling 25 p0009 A80-11830  HARTHETT, J. P.  Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655  HARVYY, B. B.  Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508  HASANAIN, H. A.  Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BECKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, B. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  HEDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  BEDSTROM, J. C.
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592  HARTMAN, R. S.  Frontiers in energy demand modeling 25 p0009 A80-11830  HARTMETT, J. P.  Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655  HARVYI, B. B.  Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508  HASANAIB, H. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere  25 p0085 A80-20454	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BBCKLINGER, R. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BBDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  BBDBECK, C. L.  The Elmo Bumpy Torus /BBT/ reactor  BBDSTROM, J. C.  Honitoring of the solar-heated modular homes at
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, B. S. Prontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Pestschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVEY, B. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAPT] 25 p0157 N80-14508 HASSANAIN, B. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASSACH, W. Silicon materials outlook study for 1980-1985	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKBS, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse 25 p0051 A80-17352  BEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor 25 p0002 A80-10226  BEDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  BEDSTROM, J. C.  Honitoring of the solar-heated modular homes at Los Alamos
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, B. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Pestschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVEY, E. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASANAIN, H. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, B. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  BEDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  BEDSTROH, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592  HARTMAN, R. S.  Frontiers in energy demand modeling 25 p0009 A80-11830  HARTMETT, J. P.  Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655  HARVYI, B. B.  Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508  HASANAIB, H. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere  25 p0085 A80-20454  HASBACH, W.  Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  HEDBICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  BEDSTROM, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, B. S. Prontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Pestschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVEY, B. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAPT] 25 p0157 N80-14508 HASANAIN, H. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492 HASBGANA, A.	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  HBCKRS, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  HECKLINGER, R. S.  The relative value of energy derived from municipal refuse 25 p0051 A80-17352  HEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor 25 p0002 A80-10226  HEDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor 25 p0058 A80-17883  HEDSTROH, J. C.  Monitoring of the solar-heated modular homes at Los Alamos 25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular Home Unit no. 1
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, B. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVEY, B. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASSAHAIH, B. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASSBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASI-CR-162541] 25 p0155 N80-14492 HASSEGAWA, A. Effect of finite beta on drift-wave turbulence and	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, B. S.  The relative value of energy derived from municipal refuse  EBDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  BEDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  BEDSTROH, J. C.  Honitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Hobile/Hodular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592  HARTMAN, R. S.  Frontiers in energy demand modeling 25 p0009 A80-11830  HARTMETT, J. P.  Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655  HARVY, B. B.  Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508  HASANAIB, H. A.  Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454  HASBACH, W.  Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492  HASBGAWA, A.  Effect of finite beta on drift-wave turbulence and particle confinement	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BBCKLINGER, R. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BBDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  HEDBICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  BEDSTROM, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular  Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BBEERMAGEN, D. R.
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, B. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVEY, B. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASSAHAIH, B. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASSBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASI-CR-162541] 25 p0155 N80-14492 HASSEGAWA, A. Effect of finite beta on drift-wave turbulence and	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, B. S.  The relative value of energy derived from municipal refuse  EBDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  BEDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  BEDSTROH, J. C.  Honitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Hobile/Hodular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, B. S. Prontiers in energy demand modeling 25 p0009 A80-11830 HARTMETT, J. P. Studies in heat transfer: A Pestschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVYY, E. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASSANAIN, H. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492 HASEGNA, A. Effect of finite beta on drift-wave turbulence and particle confinement 25 p0084 A80-20158	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKBS, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  BEDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  EBDSTROM, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BEBERAGEN, D. R.  The simulation of building heat transfer for
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, B. S. Prontiers in energy demand modeling 25 p0009 A80-11830 HARTMETT, J. P. Studies in heat transfer: A Pestschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVYY, E. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASSANAIN, H. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492 HASEGNA, A. Effect of finite beta on drift-wave turbulence and particle confinement 25 p0084 A80-20158	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  EBDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  EBDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  BEDSTROH, J. C.  Honitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Hobile/Hodular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BERRNAGEN, D. R.  The simulation of building heat transfer for passive solar systems
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592  HARTMAN, B. S.  Frontiers in energy demand modeling 25 p0009 A80-11830  HARTMETT, J. P.  Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655  HARVYY, B. B.  Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508  HASAMAIN, M. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454  HASBACH, W.  Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492  HASBGAWA, A. Effect of finite beta on drift-wave turbulence and particle confinement 25 p0084 A80-20158  HASBGAWA, M. Gasification of solid waste in a fluidized bed	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BBCKLINGER, R. S.  The relative value of energy derived from municipal refuse  EDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  The Elmo Bumpy Torus /EBT/ reactor  EBDSTROM, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BBERNAGEN, D. R.  The simulation of building heat transfer for passive solar systems [ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, B. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTMETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVFY, E. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASSANAIN, H. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492 HASBGANA, A. Effect of finite beta on drift-wave turbulence and particle confinement 25 p0084 A80-20158 HASBGANA, M. Gasification of solid waste in a fluidized bed reactor with circulating sand	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKBS, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  BEDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  BEDSTROM, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BEBERAGEN, D. R.  The simulation of building heat transfer for passive solar systems [ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574  BEGG, D. A.
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTHAN, B. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTHETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVEY, E. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASSHAIN, M. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASB-CR-162541] 25 p0155 N80-14492 HASBGANA, A. Effect of finite beta on drift-wave turbulence and particle confinement 25 p0084 A80-20158 HASBGANA, M. Gasification of solid waste in a fluidized bed reactor with circulating sand 25 p0074 A80-18868	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, B. S.  The relative value of energy derived from municipal refuse  EBDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  BEDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  EBDSTROH, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BEDRUAGEN, D. R.  The simulation of building heat transfer for passive solar systems [ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574  BEGG, D. A.  Heasurements of gas-to-particle conversion in the
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592  HARTMAN, B. S.  Frontiers in energy demand modeling 25 p0009 A80-11830  HARTMETT, J. P.  Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655  HARVYY, B. B.  Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508  HASMANIN, H. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454  HASBACH, W.  Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492  HASBGANA, A. Effect of finite beta on drift-wave turbulence and particle confinement 25 p0084 A80-20158  HASBGANA, M. Gasification of solid waste in a fluidized bed reactor with circulating sand  25 p0074 A80-18868	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  EDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  The Elmo Bumpy Torus /EBT/ reactor  EBDSTROM, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BEBERNAGEN, D. R.  The simulation of building heat transfer for passive solar systems [ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574  BEGG, D. A.  Measurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, B. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTMETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVYY, E. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAPT] 25 p0157 N80-14508 HASSANAIN, H. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492 HASEGANA, A. Effect of finite beta on drift-wave turbulence and particle confinement 25 p0084 A80-20158 HASBGANA, M. Gasification of solid waste in a fluidized bed reactor with circulating sand 45 p0074 A80-18868 HASELHAN, L. C. Numerical modeling of LNG spill phenomena	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  HBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  HBCKLINGER, R. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  HBDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  HBDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  BEDSTROM, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  HBEDRAGEN, D. B.  The simulation of building heat transfer for passive solar systems [ASME PAPEE 79-WA/SOL-38] 25 p0067 A80-18574  HEGG, D. A.  Measurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants 25 p0089 A80-21010
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, R. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTMETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVYY, B. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASANATH, B. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492 HASBGANA, A. Effect of finite beta on drift-wave turbulence and particle confinement 25 p0084 A80-20158 HASBGANA, H. Gasification of solid waste in a fluidized bed reactor with circulating sand  483ELHAH, L. C. Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, B. S.  The relative value of energy derived from municipal refuse  EBDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  BEDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  EBDSTROH, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular  Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BEBERGER, D. R.  The simulation of building heat transfer for passive solar systems [ASNE PAPER 79-WA/SOL-38] 25 p0067 A80-18574  BEGGG, D. A.  Heasurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants 25 p0089 A80-21010
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592  HARTMAN, B. S.  Frontiers in energy demand modeling 25 p0009 A80-11830  HARTMETT, J. P.  Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655  HARVYY, B. B.  Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508  HASMANIN, H. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454  HASBACH, W.  Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492  HASBGANA, A. Effect of finite beta on drift-wave turbulence and particle confinement 25 p0084 A80-20158  HASBGANA, M. Gasification of solid waste in a fluidized bed reactor with circulating sand  25 p0074 A80-18868  HASELHAN, L. C. Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  EBDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  The Elmo Bumpy Torus /EBT/ reactor  EBDSTROM, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BEBENNAGEN, D. R.  The simulation of building heat transfer for passive solar systems [ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574  BEGG, D. A.  Measurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants 25 p0089 A80-21010  BEGGIR, J. C. P.  Use of nuclear techniques in the characterization
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, R. S. Frontiers in energy demand modeling 25 p0009 A80-11830 HARTMETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVYY, B. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASANATH, B. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492 HASBGANA, A. Effect of finite beta on drift-wave turbulence and particle confinement 25 p0084 A80-20158 HASBGANA, H. Gasification of solid waste in a fluidized bed reactor with circulating sand  483ELHAH, L. C. Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, B. S.  The relative value of energy derived from municipal refuse  EBDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  BEDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  EBDSTROH, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular  Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BEBERGER, D. R.  The simulation of building heat transfer for passive solar systems [ASNE PAPER 79-WA/SOL-38] 25 p0067 A80-18574  BEGGG, D. A.  Heasurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants 25 p0089 A80-21010
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592  HARTMAN, B. S.  Frontiers in energy demand modeling 25 p0009 A80-11830  HARTMETT, J. P.  Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655  HARVYY, B. B.  Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508  HASMANIN, H. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454  HASBACH, W.  Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492  HASBGANA, A. Effect of finite beta on drift-wave turbulence and particle confinement 25 p0084 A80-20158  HASBGANA, M. Gasification of solid waste in a fluidized bed reactor with circulating sand  25 p0074 A80-18868  HASELHAN, L. C. Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  EBDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  BEDSTROM, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BEBERNAGEN, D. B.  The simulation of building heat transfer for passive solar systems [ASME PAPER 79-NA/SOL-38] 25 p0067 A80-18574  BEGGI, D. A.  Heasurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants 25 p0089 A80-21010  BEGGIE, J. C. P.  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592 HARTMAN, B. S. Prontiers in energy demand modeling 25 p0009 A80-11830 HARTMETT, J. P. Studies in heat transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655 HARVYY, E. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508 HASANAIN, H. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere 25 p0085 A80-20454 HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NAS-CR-162541] 25 p0155 N80-14492 HASEGANA, A. Effect of finite beta on drift-wave turbulence and particle confinement 25 p0084 A80-20158 HASEGANA, H. Gasification of solid waste in a fluidized bed reactor with circulating sand 25 p0074 A80-18868 HASELHAN, L. C. Numerical modeling of LNG spill phenomena [UCRL-82031] 25 p0130 N80-12625 HASLETT, J. The assessment of actual wind power availability	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  EDDEM, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  EDDEMICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  EBDSTROH, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular  Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BEDERWAGEN, D. R.  The simulation of building heat transfer for passive solar systems [ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574  BEGGG, D. A.  Measurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants 25 p0089 A80-21010  BEGGIE, J. C. P.  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592  HARTMAN, R. S. Frontiers in energy demand modeling  HARTMAN, R. S.  Frontiers in hear transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655  HARVYY, B. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508  HASANAIN, M. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere  25 p0085 A80-20454  HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492  HASBGANA, A. Effect of finite beta on drift-wave turbulence and particle confinement  25 p0084 A80-20158  HASBGANA, M. Gasification of solid waste in a fluidized bed reactor with circulating sand  [UCRL-82031] 25 p0130 N80-12625  HASLETT, J. The assessment of actual wind power availability in Ireland	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  BEDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  25 p0002 A80-10226  HEDBICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  ERDSTROM, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  HEBERWAGEN, D. R.  The simulation of building heat transfer for passive solar systems [ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574  HEGG, D. A.  Measurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants 25 p0089 A80-21010  EEGGIE, J. C. P.  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0084 A80-20141
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592  HARTMAN, R. S. Frontiers in energy demand modeling  HARTMAN, R. S.  Frontiers in hear transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655  HARVYY, B. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508  HASANAIN, M. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere  25 p0085 A80-20454  HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492  HASBGANA, A. Effect of finite beta on drift-wave turbulence and particle confinement  25 p0084 A80-20158  HASBGANA, M. Gasification of solid waste in a fluidized bed reactor with circulating sand  [UCRL-82031] 25 p0130 N80-12625  HASLETT, J. The assessment of actual wind power availability in Ireland	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  HBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  HBCKLINGER, R. S.  The relative value of energy derived from municipal refuse  25 p0051 A80-17352  HBDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  HBDRICK, C. L.  The Elmo Bumpy Torus /EBT/ reactor  BEDSTROM, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  Performance of Los Alamos solar Mobile/Modular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  HBEBENAGEN, D. B.  The simulation of building heat transfer for passive solar systems [ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574  HEGG, D. A.  Measurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants 25 p0089 A80-21010  BEGGIE, J. C. P.  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0084 A80-20141  HEIGES, B. B.  Small solar thermal electric power plants with
powerplant [ASME PAPER 79-WA/SOL-6] 25 p0070 A80-18592  HARTMAN, R. S. Frontiers in energy demand modeling  HARTMAN, R. S.  Frontiers in hear transfer: A Festschrift for E. R. G. Eckert 25 p0036 A80-14655  HARVYY, B. B. Commercialization strategy report for hydrothermal electric and direct heat application [TID-28840-DRAFT] 25 p0157 N80-14508  HASANAIN, M. A. Adsorption of hydrogen sulfide in shale retorted in an inert atmosphere  25 p0085 A80-20454  HASBACH, W. Silicon materials outlook study for 1980-1985 calendar years [NASA-CR-162541] 25 p0155 N80-14492  HASBGANA, A. Effect of finite beta on drift-wave turbulence and particle confinement  25 p0084 A80-20158  HASBGANA, M. Gasification of solid waste in a fluidized bed reactor with circulating sand  [UCRL-82031] 25 p0130 N80-12625  HASLETT, J. The assessment of actual wind power availability in Ireland	Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  BBCKES, A. A.  Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572  BECKLINGER, R. S.  The relative value of energy derived from municipal refuse  EBDDEN, K.  Rapid devolatilization and partial gasification of coal in an entrained dust reactor  The Elmo Bumpy Torus /EBT/ reactor  EBDSTROM, J. C.  Monitoring of the solar-heated modular homes at Los Alamos  25 p0022 A80-12607  Performance of Los Alamos solar Mobile/Modular Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577  BEBENNAGEN, D. R.  The simulation of building heat transfer for passive solar systems [ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574  BEGG, D. A.  Measurements of gas-to-particle conversion in the plumes from five coal-fired electric power plants 25 p0089 A80-21010  BEGGIR, J. C. P.  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0084 A80-20141

HEIMBURGER, D. A.
A survey of electric and hybrid vehicle simulation programs
[NASA-CB-162457] 25 p0118 N80-11954
HEINSHEIMER, T. F. Unleaded gasoline shortages and fuel switching -
The potential impact in Southern California
25 p0004 A80-11019 HEBERWAY, A.
Conmercialization task force for high Btu
gasification [TID-28849] 25 p0135 N80-13286
[TID-28849] 25 p0135 N80-13286 HENDERSON, J.
Solar pond concepts: Old and new
[SERI/TF-35-208] 25 p0 102 N80-10663 HENDERSON, R. W.
Energy program at the Johns Hopkins University
Applied Physics Laboratory [PB-310245/7] 25 p0179 N80-15648
HENDERSON, T. H.
The KMSF laser fusion programme 25 p0056 180-17860
HENDRICKS, C. D.
X-ray measurement of laser fusion targets using
least squares fitting 25 p0060 A80-18110
HENDRIE, S. D.
Evaluation of combined photovoltaic/thermal collectors
[COO-4577-8] 25 p0 143 N80-13665
Preliminary assessment of industrial needs for an
advanced ocean technology
[NASA-CR-162435] 25 p0118 N80-11747 HENKES, P. R. W.
Construction and test of a high power injector of
hydrogen cluster ions 25 p0080 A80-19618
HENLINE, W. D.
Dynamic modeling of H2S clean-up processes 25 p0088 A80-20885
HENNESSET, J. P., JR.
HENNESSET, J. P., JR. Critique of the meteorological and air quality
HENNESSET, J. P., JR.
HENNESSEY, J. P., JR.  Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the
HENNESSEY, J. P., JR.  Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management  [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723
HENNESSEY, J. P., JR.  Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723 HENNING, C. D.
HENNESSEY, J. P., JR.  Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management  [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723  HENNING, C. D.  Superconductivity for mirror fusion  [UCRL-81693] 25 p0181 N80-15933
HENNESSEY, J. P., JR.  Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0 148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0 181 N80-15933  HENRIQUEZ, N.
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723 HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0181 N80-15933 HENRIQUEZ, N. Characterization of solid-waste conversion and cogeneration systems
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0 148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0 181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0 141 N80-13648
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0181 N80-15933  HENRIQUEZ, N. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0 148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0 181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0 141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCHL-81693] 25 p0181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0165 N80-14595
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCHL-81693] 25 p0181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0165 N80-14595
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0181 N80-15933  HENRIQUEZ, H. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0165 N80-14595  HERRENDERM, R. A. Gasohol - Does it or doesn't it produce positive net energy
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DDE/RV-70031/4-PT-A/B] 25 p0 148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCEL-81693] 25 p0 181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0 141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0 165 N80-14595  HERRENDEEN, R. A. Gasohol - Does it or doesn't it produce positive net energy 25 p0 034 A80-13863
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0181 N80-15933  HENRIQUEZ, H. Characterization of solid-waste conversion and cogeneration systems [IBL-7883] 25 p0141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0165 N80-14595  HERREDDERM, R. A. Gasohol - Does it or doesn't it produce positive net energy 25 p0034 A80-13863  New hybrid 1971 energy intensities, part 1 [COO-4628-4-PT-1] 25 p0158 N80-14516
HENNESSEY, J. P., JR.  Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/RV-70031/4-PT-A/B] 25 p0 148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0 181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0 141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0 165 N80-14595  HERRENDERM, R. A. Gasohol - Does it or doesn't it produce positive net energy 25 p0 034 A80-13863  New hybrid 1971 energy intensities, part 1 [COO-4628-4-PT-1] 25 p0 158 N80-14516
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0181 N80-15933  HENRIQUEZ, H. Characterization of solid-waste conversion and cogeneration systems [IBL-7883] 25 p0141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0165 N80-14595  HERREDDERM, R. A. Gasohol - Does it or doesn't it produce positive net energy 25 p0034 A80-13863  New hybrid 1971 energy intensities, part 1 [COO-4628-4-PT-1] 25 p0158 N80-14516
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0 148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0 181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0 141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0 165 N80-14595  HERRENDERM, R. A. Gasohol - Does it or doesn't it produce positive net energy 25 p0 034 A80-13863  New hybrid 1971 energy intensities, part 1 [COO-4628-4-PT-1] 25 p0 158 N80-14516  HERRELER, A. Regional reference energy systems: Electric utility applications [BNL-50962] 25 p0 111 N80-11585
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0181 N80-15933  HENRIQUEZ, H. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0165 N80-14595  HERREDDERM, R. A. Gasohol - Does it or doesn't it produce positive net energy New hybrid 1971 energy intensities, part 1 [COO-4628-4-PT-1] 25 p0158 N80-14516  HERRELEE, A. Regional reference energy systems: Electric utility applications
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/RV-70031/4-PT-A/B] 25 p0 148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0 181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0 141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0 165 N80-14595  HERRENDERM, R. A. Gasohol - Does it or doesn't it produce positive net energy 25 p0 034 A80-13863  New hybrid 1971 energy intensities, part 1 [COO-4628-4-PT-1] 25 p0 158 N80-14516  HERRENDERM, A. Regional reference energy systems: Electric utility applications [BNL-50962] 25 p0 111 N80-11585  HEWSON, B. W. A low level wind measurement technique for wind turbine generator siting
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0165 N80-14595  HEREBDERM, R. A. Gasohol - Does it or doesn't it produce positive net energy 25 p0034 A80-13863  New hybrid 1971 energy intensities, part 1 [COO-4628-4-PT-1] 25 p0158 N80-14516  HERMELER, A. Regional reference energy systems: Electric utility applications [BNL-50962] 25 p0111 N80-11585  HEWSON, E. W. A low level wind measurement technique for wind
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/RV-70031/4-PT-A/B] 25 p0 148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0 181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0 141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0 165 N80-14595  HERRENDERM, R. A. Gasohol - Does it or doesn't it produce positive net energy 25 p0 034 A80-13863  New hybrid 1971 energy intensities, part 1 [COO-4628-4-PT-1] 25 p0 158 N80-14516  HERRENDERM, A. Regional reference energy systems: Electric utility applications [BNL-50962] 25 p0 111 N80-11585  HENSON, B. W. A low level wind measurement technique for wind turbine generator siting 25 p0 042 A80-16084
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0165 N80-14595  HERBEDBEN, R. A. Gasohol - Does it or doesn't it produce positive net energy 25 p0034 A80-13863  New hybrid 1971 energy intensities, part 1 [COO-4628-4-PT-1] 25 p0158 N80-14516  HERBELDER, A. Regional reference energy systems: Electric utility applications [BNL-50962] 25 p0111 N80-11585  HEWSON, E. W. A low level wind measurement technique for wind turbine generator siting 25 p0042 A80-16084  HICKS, R. E. Wastewater treatment in coal conversion [PB-297587/8] 25 p0104 N80-10700  HIGHTOWER, M. M.
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/RV-70031/4-PT-A/B] 25 p0 148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0 181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0 141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0 165 N80-14595  HERRENDEEN, R. A. Gasohol - Does it or doesn't it produce positive net energy 25 p0 034 A80-13863  New hybrid 1971 energy intensities, part 1 [COO-4628-4-PT-1] 25 p0 158 N80-14516  HERRELER, A. Regional reference energy systems: Electric utility applications [BNL-50962] 25 p0 111 N80-11585  HEWSON, B. W. A low level wind measurement technique for wind turbine generator siting 25 p0 042 A80-16084  HICKS, R. P. Wastewater treatment in coal conversion [PB-297587/8] 25 p0 104 N80-10700  HIGHTOWER, M. B. Use of geothermal energy for desalination in New
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0 148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0 181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0 141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0 165 N80-14595  HERBEDBER, R. A. Gasohol - Does it or doesn't it produce positive net energy 25 p0 034 A80-13863  New hybrid 1971 energy intensities, part 1 [COC-4628-4-PT-1] 25 p0 158 N80-14516  HERMELEE, A. Regional reference energy systems: Electric utility applications [BNL-50962] 25 p0 111 N80-11585  HENNELEE, A. A low level wind measurement technique for wind turbine generator siting  HICKS, R. E. Wastewater treatment in coal conversion [PB-297587/8] 25 p0 104 N80-10700  HIGHTOWER, M. M. Use of geothermal energy for desalination in New Mexico: A feasibility study [PB-299271/7] 25 p0 179 N80-15645
HENNESSEY, J. P., JR.  Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/RV-70031/4-PT-A/B] 25 p0148 N80-13723  HENNING, C. D.  Superconductivity for mirror fusion [URL-81693] 25 p0181 N80-15933  HENRIQUEZ, M.  Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648  HENSCHEL, D. B.  Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0165 N80-14595  HERENDEEN, R. A.  Gasohol - Does it or doesn't it produce positive net energy 25 p0034 A80-13863  New hybrid 1971 energy intensities, part 1 [COO-4628-4-PT-1] 25 p0158 N80-14516  HERHBLER, A.  Regional reference energy systems: Electric utility applications [BNL-50962] 25 p0111 N80-11585  HEWSON, B. W.  A low level wind measurement technique for wind turbine generator siting  15 p0042 A80-16084  HICKS, R. P.  Wastewater treatment in coal conversion [PB-297587/8] 25 p0104 N80-10700  HIGHTOWER, M. B.  Use of geothermal energy for desalination in New Mexico: A feasibility study [PB-299271/7] 25 p0179 N80-15645
Critique of the meteorological and air quality baseline monitoring program for the prototype oil shale leaseholds. Part A: Comments on the approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PT-A/B] 25 p0 148 N80-13723  HENNING, C. D. Superconductivity for mirror fusion [UCRL-81693] 25 p0 181 N80-15933  HENRIQUEZ, M. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0 141 N80-13648  HENSCHEL, D. B. Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results [PB-298473/0] 25 p0 165 N80-14595  HERBEDBER, R. A. Gasohol - Does it or doesn't it produce positive net energy 25 p0 034 A80-13863  New hybrid 1971 energy intensities, part 1 [COC-4628-4-PT-1] 25 p0 158 N80-14516  HERMELEE, A. Regional reference energy systems: Electric utility applications [BNL-50962] 25 p0 111 N80-11585  HENNELEE, A. A low level wind measurement technique for wind turbine generator siting  HICKS, R. E. Wastewater treatment in coal conversion [PB-297587/8] 25 p0 104 N80-10700  HIGHTOWER, M. M. Use of geothermal energy for desalination in New Mexico: A feasibility study [PB-299271/7] 25 p0 179 N80-15645

```
HILL, G. B.
A regional approach to forecasting electric energy
      requirements for environmental assessments
                                                25 p0130 N80-12619
HILL, J. B.
A comparison of test results for flat-plate
      water-heating solar collectors using the BSE and
      ASHRAE procedures
[ASHE PAPER 79-WA/SOL-4]
                                                25 p0069 A80-18585
HILL, J. H.
    Identification of environmental control
      technologies for geothermal development in the
Imperial Valley of California
      [UCRL-52548]
                                                25 p0179 N80-15668
    Proceedings of the Sixth Conference, Washington, D.C., February 26-28, 1979
                                                25 p0013 A80-11953
    Sensitivity study of Brayton cycle power plant
      performance
                                                25 p0098 N80-10626
      [SAND-78-8020]
HILLMAN, A. R.
    Thionine coated electrode for photogalvanic cells
25 p0051 A80-17343
    Simulation approach for base-line energy-siting
      analysis
[CONF-790459-22]
                                                25 p0157 N80-14511
HINERMAN, J. M.
    Horizontal-axis wind generator performance with varying tip speed ratio and rotor orientation
[ASME PAPEE 79-WA/SOL-2] 25 p0067 A80-18571
HINES, A. L.
    Adsorption of hydrogen sulfide in shale retorted
      in an inert atmosphere
                                                25 p0085 A80-20454
BINKEBBEIN, T. E.
Closed-cycle bydride engines
[SAND-78-2228]
                                                25 p0125 N80-12572
HINNAN, G. W.
    Comparison of geothermal energy with coal, oil,
      and natural gas for selected uses
[DOE/ET-27139-1] 25 p0123 N80-12558
HINRICHSEN, B. N.
    Induction and synchronous machines for vertical
      axis wind turbines [SAND-79-7017]
                                                25 p0144 N80-13675
    Minimum cost transmitter-receiver antenna pairs
[RM-690] 25 p0094 N80-1041
[HM-690]
HIRATA, Y.
    Constant current and constant voltage excitation of large coils by flywheel-generator-converter 25 p0080 A80-19624
    Constant current and constant voltage excitation
       of large coils by flywheel-generator-converter
                                                25 p0080 A80-19624
    Magnetic field design for a large tokamak
                                                25 p0046 A80-16760
    Measurements of gas-to-particle conversion in the
       plumes from five coal-fired electric power plants
25 p0089 A80-21010
BOBBY, M. Results from the Divertor Injection Tokamak Experiment /DITE/ 25 p0054
                                                25 p0054 A80-17754
HODGDON, R. B. Anton permselective membrane
[NASA-CE-159599] 25 p0122 N80-12
HODGSON, R. T.
The effect of fluorescent wavelength shifting on solar cell spectral response
                                                25 p0122 N80-1255
                                                25 p0086 A80-2071
HOFFMAN, D. C.
Management of coal preparation fine wastes without
 disposal ponds
[PB-299100/8]
                                                25 p0180 N80-1569
     Low-temperature thermal energy storage program
       annual operating plan
```

[ORMI/TH-6605] 25 p0125 N80-Condensation and evaporation heat transfer with

low-boiling temperature fluids

[CONF-790539-1]

25 p0125 N80-1256

25 p0137 N80-1341

PERSONAL AUTHOR INDEX HUBER, E. D.

Low-temperature thermal energy st	orage program	HOPKINS, H. T.	
annual operating plan [ORNL/TH-6934]	25 p0139 N80-13631	Environmental assessment report: Coal (SEC) systems	Solvent Refined
OFFHAN, K. C.	-	[PB-300383/7]	25 p0179 N80-15676
Dynamics and control: Energy con delivery, and demand analysis	version,	Net energy analysis of alcohol pr	_
[BNL-26045]	25 p0099 N80-10633	sugarcane	
OPPNAH, T. J. Economics of fusion driven symbio	tic energy systems	HOPKINSON, R. P.	25 p0062 A80-18165
[CONF-790602-50]	25 p0128 N80-12602	Test plan for the Mead 25-kW Phot Test Facility, 1979	ovoltaic Flexible
High-beta tokamaks	25 p0054 A80-17789	[COO-4094-53] HOPPING, K. A.	25 p0146 N80-13692
OGAN, W. J.	-	An evaluation of the NASA Tech Ro	use, including
Numerical modeling of LNG spill p [UCRL-82031]	henomena 25 p0130 N80-12625	live-in test results, volume 1 [NASA-TP-1564]	25 -0400 200 44550
OLBL, J. P.	25 po 130 Hou-12025	EORA, B.	25 p0109 N80-11559
Investigation of the applicabilit systems utilizing solar energy supply of buildings		Calculations of inertial confiner using a collective model for re bremsstrahlung and fuel depleti	heat,
[BMFT-FB-T-78-48]	25 p0116 N80-11630	efficient electrodynamic laser	compressions
OLDREN, J. P. Environmental aspects of alternat	ive energy	HORNELL, C.	25 p0058 A80-17875
technologies for California [UCRL-15002]	25 p0131 N80-12628	Utility fuel cells for Sweden	25 p0011 A80-11852
OLIGHAUS, R. Technical possibilities and econo	_	HORNEE, H. L. Doublet III neutral beam injection	_
coal refining	25 p0043 A80-16175	and status report	25 p0079 A80-19599
OLL, R. J.	•	HORODENSKI, A.	25 poor5 800 15555
A solar thermal electric power pl. communities	ant for small	Nuclear fusion by cylindrical ion	
[ASME PAPER 79-WA/SOL-7]	25 p0069 A80-18584	HOUGHBY, W. E.	25 p0058 A80-17874
OLLA, V.  Review of the work done at C.E.E.	P. T. on the	Integral cell scale-up and perfor	
development of single crystal s		[EPRI-EM-1134] BOUSE, P. A.	25 p0141 N80-13646
cells for use with concentrated		New concepts for converting the e	
OLLAND, H. H.	25 p0027 A80-12777	medium-temperature liquids, wit geothermal applications	h emphasis on
Doublet III neutral beam injection	n system overview	[UCRL-52583]	25 p0125 N80-12570
and status report	25 p0079 A80-19599	HOUSEMAN, J. Start up system for hydrogen gene	rator used with
OLLANDER, J. H.	-	an internal combustion engine	
Annual review of energy. Volume 4	25 p0008 A80-11826	[NASA-CASE-NPO-13849-1] HOVEL, H. J.	25 p0092 N80-10374
United States energy alternatives		The effect of fluorescent wavelen	gth shifting on
beyond - The CONAES study	25 p0008 A80-11827	solar cell spectral response	25 p0086 A80-20715
OLLECK, G. L.	•	HOWELL, J. R.	-
Development of silver-hydrogen ce	lls   25 p0010 A80-11843	Solar concentrators using vacuum- surfaces for tracking	contoured
OLT, H. A.	-	[AIAA PAPER 80-0399]	25 p0077 A80-19326
The near term potential for gasif, cycle electric power generation		HOWELL, R. B.	
ofore erecting boact description	25 p0015 A80-11970	LASL toroidal reversed-field pinc	25 p0054 A80-17809
OLVE, D. J. An in-situ optical particle sizin	a technique	HOWELL, Y.	-
[AIAA PAPER 80-0020]		Engineers guide to solar energy [PB-297043/2] HRUBY, V.	25 p0164 N80-14574
Chemical structures and reactivit.	ies of coal as an	Analysis of tarry fractions in em	issions resulting
organic natural product [CONF-790415-25]	25 p0105 N80-11168	from low temperature oxidation	
OMOLYA, J. B.	-	HSIEH, B. C. B.	25 p0007 A8C-11448
Measurement of gaseous hydrogen c from municipal refuse energy re		Fixed-bed gasifier dynamic model study	for IGCCP control
the United States	25 p0C19 A80-12128	HUANG, B.	25 p0088 A80-20883
OMSY, R. V.	-	Status of development, energy and	economics
Two-dimensional transient dispers adsorption in porous media	ion and	aspects of alternative technolo	
[UCRL-81970]	25 p0108 N80-11386	[CONF-790371-1] HUANG, H. C.	25 p0145 N80-13689
ONDA, K. Photoelectrochemical hydrogen pro	luction	Analysis of S-band solid-state tr the solar power satellite	ansmitters for
	25 p0052 A80-17580	[ NASA-CB-160320 ]	25 p0096 N80-10600
ONEA, R. B. Computer software to calculate and	l map geologic	Comparative study of solar optics	for paraboloidal
parameters required in estimating production costs	ng coal	concentrators ~	_
[EPRI-EA-674]	25 p0095 N80-10584	[ASME PAPER 79-WA/SOL-8] HUBA, J. D.	25 p0066 A80-18564
OOKE, W. H. Steady-state currents driven by co	ollisionally	Drift wave stability and transpor fusion systems	
damped lower-hybrid waves	25 p0C84 A80-20157	HUBBARTT, J. E.	25 p0056 A80-17846
OPKINS, D.	•	Mach 3 hydrogen external/base bur	ning
150-kv, 80-A solid state power sup beam injection	pply for neutral	[AIAA PAPER 80-0280] HUBER, H. D.	25 p0077 A80-19311
	25 p0080 A80-19617	User manual for GEOCITY: A compu	ter model for
		geothermal district heating cos [PNL-2742]	t analysis 25 p0113 N80-11605
		-	

Initial study

25 p0158 N80-14522

25 p0003 A80-10524

ISAACS, J. D.
Salinity gradient power - Utilizing vapor pressure differences

```
HUBER, L.
    Rapid devolatilization and partial gasification of
       coal in an entrained dust reactor
                                                    25 p0002 A80-10226
                                                                                       IAKOVLEV, IU. P.
HUDGINS, J. L.

Coal-shale interface detection system
[NASA-CASE-NFS-23720-2] 25 p
                                                                                           Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric
                                                                                              converters with an illuminated n-region
                                                    25 p0152 N80-14423
                                                                                                                                           25 p0044 A80-16626
HUDSON, C. L.
                                                                                       IANNUCCI, J. J.
    DSUM, C. L.

Benergy storage systems for automobile propulsion,
1978 study. 1: Overview and findings
[UCBL-52553-VOL-1] 25 p0105 N80-10
Energy storage system for automobile propulsion,
1978 study. 2: Detailed report
[UCBL-52553-VOL-2] 25 p0181 N80-15
                                                                                           Applications analysis of fixed site hydrogen storage
                                                                                             [SAND-78-8272]
                                                                                                                                           25 p0092 N80-10384
                                                                                       IBADOV, S.
Possibility of conversion of solar corpuscular radiation energy into electrical energy 25 p0085 &80-
                                                    25 po 105 N80-10970
                                                   25 p0 181, N80-15995
                                                                                                                                           25 p0085 480-20495
HUDSON, N. M.
Some aspects of sodium-sulphur batteries
                                                                                           Direct thermal decomposition of water
                                                    25 p0013 A80-11866
                                                                                                                                           25 p0052 A80-17577
Buck to the central city - Myths and realities
                                                                                           Diffusion of tritium in neutron-irradiated
                                                    25 p0002 A80-10323
                                                                                              microcrystalline Beta-Li5Al04
                                                                                                                                           25 p0081 A80-19660
    Residential solar heat pump systems - Thermal and
                                                                                       IIYOSHI, A.
Study of current-driven magnetohydrodynamic instability in the Heliotron-D device
       economic performance
[ASME PAPER 79-WA/SOL-25]
                                                    25 p0070 A80-18591
                                                                                                                                           25 p0084 A80-20159
    Results from the Divertor Injection Tokamak
                                                                                       ILES, P. A.
Silicon solar cell process development,
fabrication and analysis, phase 1
25 no
       Experiment /DITE/
                                                    25 p0054 A80-17754
HULISZ, S.
                                                                                             [ NASA-CR-162427]
                                                                                                                                          25 p0109 N80-11561
    Progress in B and D on coal liquefaction
                                                                                       ILIEV, IA
Neutral electrolyte aluminium-air battery
       Progress in research-development on coal
       liquefaction
                                                                                                                                          25 p0011 A80-11849
                                                    25 p0030 A80-12940
                                                                                       IM, K. H.
                                                                                           Heat transfer including radiation and slag
particles evolution in MHD channel. I
    Economic analysis of small scale bioconversion
       units in New Mexico
                                                                                              [AIAA PAPER 80-0250]
                                                                                                                                          25 p0076 A80-19304
       [PB-301390/1]
                                                    25 p0169 N80-15298
                                                                                       IMARISIO, G.
                                                                                           The R&D programme of the European communities in
the field of hydrogen - Progress and results
25 p0032 A80-13195
HOLSTBON, R. L.
Insolation models, data and algorithms
[SERI/TE-36-110] 25 p
                                                    25 p0165 N80-14617
HUMPHREYS, D. W.

New technology and vehicle operation on roadways

25 p0037 A80-14702
                                                                                      IMASAKI, K.
Inertial confinement fusion research at Osaka
                                                                                                                                          25 p0057 A80-17868
                                                                                      IMPEROV, A. B.
Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric converters with an illuminated n-region
25 p0044 A80-16626
HUNDEHANN, A. S.
    Geothermal energy. Part 1: Exploration, volume
3. Citations from the NTIS data base
[NTIS/PS-79/0814/8] 25 p0148 N80-13715
Geothermal energy. Part 2: Corrosion and
equipment, volume 3. Citations from the NTIS
                                                                                      INGBERMAN, A. Commercialization task force for high Btu
       data base
                                                                                             gasification
[TID-28849]
       [NTIS/PS-79/0815/5]
                                                   25 p0148 N80-13716
                                                                                                                                          25 p0135 N80-13286
    Geothermal energy. Part 3: Technology and
general studies, volume 4. Citations from the
NTIS data base
                                                                                      INGBERMAN, A. K.
Commercialization strategy report for coal
                                                                                             liquefaction
       [NTIS/PS-79/0817/1]
                                                   25 p0148 N80-13719
                                                                                             [IID-28846]
                                                                                                                                          25 p0135 N80-13285
    Geothermal energy, volume 4. Citations from the Engineering Index data base
[NTIS/PS-79/0819/7] 25 p0148 N80-13
                                                                                           Commercialization strategy report for small wind
                                                                                             systems
                                                   25 p0148 N80-13720
                                                                                             [ TID-28844-DRAFT]
                                                                                           [TID-28844-DRAFT] 25 p0161 N80-14543
Commercialization strategy report for large wind
HUNEAÙ, M.
    Plame propagation through unconfined and confined
                                                                                             systems [TID-28843-DRAFT].
       hemispherical stratified gaseous mixtures
                                                                                                                                          25 p0161 N80-14544
                                                                                      INGLIS, M. H.
Residential heat loss mapping of Farmington, New
                                                   25 p0008 A80-11816
    Circumsolar radiation data for central receiver
                                                                                             Mexico using airborne thermal scanning
       simulation
                                                                                                                                          25 p0084 A80-20242
       [LBL-8371]
                                                    25 p0131 N80-12647
    Measurement of circumsolar radiation: Status report [LBL-8391] 25 p0133 N80-12982
                                                                                          Besearch overview of biological and chemical
conversion methods and identification of key
research areas for SERI
HURD, H. A.
    Measurements and standards for recycled oil - 2
                                                                                             [ SEBI/TR-33-067]
                                                                                                                                          25 p0115 N80-11617
[PB-299951/4] 25
HYATT, D.
Flat-plate solar collector materials
                                                    25 p0167 N80-15275
                                                                                      IRBTOB, V.
Measurement of energy to heat houses:
                                                                                             [PB-299448/2]
                                                                                                                                          25 p0170 N80-15304
                                                                                      IRVINE, T. F., JR.
Studies in heat transfer: A Pestschrift for E. R.
                                                   25 p0035 A80-14409
RYLAND, S.

Relating computer simulation studies with
                                                                                             G. Eckert
      interface state measurements on MIS solar cells 25 p0062 A80-18231
                                                                                                                                          25 p0036 A80-14655
                                                                                      ISAACS, B.
HYNAN, R. A.

Battery Energy Storage Test (BEST) facility
[EPRI-EN-1005] 25 p0098 N80-10628
                                                                                          Fusion energy for hydrogen production [BNL-24906] 25
                                                                                                                                          25 p0180 N80-15897
                                                                                      ISAACS, H. S.
Solid electrolyte fuel cell for electric power
HYPES, W. D.

An evaluation of the NASA Tech House, including live-in test results, volume 1

25 p0109 N80-
                                                                                             generation
                                                                                             [BNL-26238]
```

25 p0109 N80-11559

Ocean energy - Forms and prospects
25 p0061 A80-18162 JASKE, R. T. Hydrogen - A means of integrating competing technology into a unified energy system
25 p0014 A80-11955 ISHERWOOD, W. F. Evaluation of Baltazor known geothermal resources JAVADEV, T. S.
Solar pond concepts: Old and new
[SERI/TP-35-208] area, Nevada 25 p0076 A80-19206 25 p0102 N80-10663 JAYADÈV, T. S. Minimum ignition energies and quenching distances Thermoelectric ocean thermal energy conversion of methanol blends 25 p0004 A80-11331 25 p0124 N80-12564 [SERI/TP-35-254] JEFFRIES, K. D.
Analysis of GaAs and Si solar cell arrays for ITOH, H. Activity tests of various catalysts for hydrocracking of coal by means of high pressure differential thermal analysis earth orbital and orbit transfer missions earth offital and value [NASA-TH-81383] 25 p0167 N80-15204

JEFFS, E. J.

The application potential of hydro power
25 p0049 A80-17136 25 p0C19 A80-12244 IURUROVSKII, N. P.
An engine fuel chemistry solution to the problem
of jet fuel supplies JENKINS, G. H.
Energy storage for solar air conditioning
applications utilizing a form-stable, high 25 p0001 A80-10199 IWASAWA, Y.
Water splitting reaction on a polynaphthoquinone catalyst - A polynaphthoquinone-So2-I2 system density polyethylene pellet bed [MLH-2598 (OP)] 25 p0113 N80-11603 for H2O decomposition JENKINS, J. P. 25 p0032 A80-13196 A comparison of test results for flat-plate IZAWA. Y. water-heating solar collectors using the BSE and Inertial confinement fusion research at Osaka ASHRAE procedures 25 p0057 A80-17868 [ASSE PAPER 79-WA/SOL-4] 25 p0069 A80-18585 JENKINS, M. K. Performance of disk generators for open-cycle MHD power generation JACH, K. 25 p0007 A80-11642 Optinization of argon admixture in deuterium fusion with non-stationary action of plane shock JENSEN, D. Computer analysis of grids currently used for CdS/Cu2S solar cells 25 p0007 A80-11546 25 p0089 A80-20893 JACKSON, D. R.
Sugar crops as a source of fuels. Volume 1:
Agricultural research JEBZYKIEWICZ, A. Nuclear fusion by cylindrical ion implosion 25 p0058 A80-17874 [TID-29400/1] 25 p0093 N80-10395 JINDRA, J. JACOBSON, A. R. High-efficiency alkaline accumulator with cadmium mass treated with oxalic acid OBSON, A. H. LASL toroidal reversed-field pinch programme 25 p0054 A80-17809 25 p0010 A80-11842 Plastic bonded electrodes for nickel-cadmium JACQUINOT, J.

Design of antennae for R.F. power coupling to tokamak plasma in the ion cyclotron range of accumulators. I - Cadmium electrode 25 p0043 A80-16147 JOCKEL, W. frequency 25 p0079 A80-19608 First experiences with the use of impactors in JAEGER, E. F.
The Elmo Bumpy Torus /EBT/ reactor large power plants 25 p0074 A80-18859 JOHNSON, C. E. 25 p0058 A80-17883 JAGADISH. B. S. Experimental two-phase liquid-metal Prime mover for solar power plant magnetohydrodynamic generator program [AD-A073128] 25 p0 25 p0024 A80-12752 25 p0132 N80-12882 JOHNSON, D. Economics of small solar power plants 25 p0024 A80-12754 Volt-second consumption during the start-up phase JAGANHOHAN, A. of PLT Selection of working fluids for low temperature 25 p0040 A80-15532 JOHNSON, I. solar thermal power cycles 25 p0024 A80-12751 The use of oil shale for SO2 emission control in Prime mover for solar power plant atmospheric-pressure fluidized-bed coal combustors 25 p0064 A80-18505 25 p0024 A80-12752 JOHNSON, J. L.
MHD stability limits on high-beta tokamaks
25 p0054 A80-17797 JAHODA, F. C.
Recent developments in linear theta-pinch and laser-heated solenoid research 25 p0055 A80-17825 JOHNSON, P. C. JAIN, B. C.
Industrial applications of solar energy in India
25 p0027 A80-12780 Heating, confinement and fluctuations in the CLEO stellarator 25 p0055 A80-17826 JOHNSON, R. R. The KMSF laser fusion programme JAIN, S. C. Prime mover for solar power plant 25 p0024 A80-12752 25 p0056 A80-17860 JOHNSON, W. B. Cadmium telluride solar cells Integral cell scale-up and performance verification 25 p0026 A80-12765 [EPRI-EM-1134] JOHNSTON, T. W. 25 p0141 N80-13646 JAKUBOWSKI, L. Evidence of nonlinear processes from X-ray spectra of CO2 laser-irradiated targets Nuclear fusion by cylindrical ion implosion 25 p0058 A80-17874 JANNASCH, H. W. 25 p0046 A80-16776 Chemosynthetic production of biomass - An idea from a recent oceanographic discovery JONES, C. D. Fuel utilization in residences 25 p0045 A80-16657 [ EPRI-EA-894 ] 25 p0175 N80-15604 JARDIH, S. C.
MHD stability limits on high-beta tokamaks JONES, D. W. Regenerative flywheel energy storage system 25 p0054 A80-17797 [UCRL-13982] 25 p0112 N80-11594 JARVINEN, P. O.
Novel ceramic receiver for solar Brayton systems
25 p0146 N80-13694 JONES, G. P. Optimal insulation of solar heating system pipes and tanks 25 p0021 A80-12434

Optimal insulation of pipes and tanks for solar	JUHRISON, A. R.
heating systems [ALC-5319-2] 25 p0102 N80-106	Current collectors for sodium-sulphur batteries 25 p0013 A80-11867
JOHES, G. J. Design of photovoltaic systems for residential	JURINAK, J. J. On the performance of air-based solar heating
applications in the United States [SAND-78-2186C] 25 p0171 N80-155	systems utilizing phase-change energy storage 25 p0020 A80-12427
JOHES, G., II Energy storage in organic photoisomers 25 p0072 A80-187	JUST, J.  Beview of scenarios of future U.S. energy use 25 p0009 A80-11832
Photosensitization mechanisms for energy storing isomerizations [AD-A074968] 25 p0156 N80-145	<b>K</b>
Energy storing organic photoreactions	KAHAN, W.
[AD-A074915] 25 p0156 N80-145 JONES, H. E.	Optimization and comparison strategies for solar energy systems
Small solar thermal electric power plants with early commercial potential	[ASHE PAPER 79-WA/SOL-26] 25 p0067 A80-18573
[ASME PAPER 79-WA/SOL-9] 25 p0069 A80-185 The first small power system experiment, Phase 1:	86 The compatibility of wind and solar technology with conventional energy systems
Engineering experiment no. 1 [NASA-CR-162417] 25 p0095 N80-105	96 KAKABARV, A. 25 p0008 A80-11828
JONES, H. T.  Department of Energy fossil energy equipment development programs	Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices
[CONP-790405-14] 25 p0112 N80-115 JONES, J. B., JR.	90 25 p0051 A80-17244
Industrial applications of advanced energy systems	RALASHIAH, V. A. High-woltage multijunction solar cell
[CONF-790602-54] 25 p0147 N80-137	KALE, S. C.
An evaluation of thermal energy storage for residential air conditioning applications [ASME PAPER 79-WA/HT-31] 25 p0071 A80-186.	Pollution aspects of oilfired and coalfired boilers 25 p0074 A80-18849 31 KALHAMMER, F. R.
JONES, R. P.	Energy-storage systems
Case study of the Brownell low energy requirement house	25 p0034 A80~13513 RALININ, A. V.
[BNI-50968] 25 p0142 N80-136. JOHES, W. H.	51 Laser fusion - Energy application perspectives 25 p0030 A80-12883
Process design of the LASL bismuth sulfate thermochemical hydrogen cycle	MALISKI, S. Effect of kinetics of thermonuclear reaction
[LA-UR-79-1256] 25 p0129 N80-1260 JONGUITUDFALCON, V.	D5 products upon D-T plasma parameters
Biological transformation of light energy into methane using an anaerobic filter	25 p0007 A80-11544 Optimization of neutron yield in conical system at explosion-induced compression
JORGENSEN, L. W. 25 p0 133 N80-132	67 25 p0007 A80-11545 Optimization of argon admixture in deuterium
Ablation of solid hydrogen in a plasma 25 p005C A80-172	fusion with non-stationary action of plane shock
JOSEPH, L. M. Commercialization strategy report for coal	25 p0007 A80-11546
liquefaction [TID-28846] 25 p0135 N80-132	Improved planar solar convertor based on uranyl
JOSEPHY, N. H. Newton's method for generalized equations and the	25 p0083 A80-19740
PIES energy model 25 p0149 N80-138	KALNOKI-KIS, T. Projected mechanism for thionyl chloride and sulphuryl chloride cathode reactions
JOYCE, J. J. Gasohol - Does it or doesn't it produce positive	25 p0012 A80-11856
net energy 25 p0034 A80-138	Study of photochemical processes in the ferrous-thionine system
JUANG, L. L. Dynamic energy system optimization model	XAMATH, G. S. 25 p0027 A80-12783
[EPRI-EA-1079] 25 p0157 N80-145	Electron radiation damage of (AlGa) As-GaAs solar cells
Survey of the research into energy-economy interactions. Volume 1: Survey	[NASA-CR-162425] 25 p0 110 N80-11564
[HCP/I6346-01/1-VOL-1] 25 p0139 N80-136: JURNIGEN, H.	devices - Neutral-beam injectors and beam-direct
An update of German non-isothermal coal pyrolysis work	converters 25 p0043 A80-16262
JUMBL, Y.  Lead oxides-lithium cells	Fhotochemical hydrogen production
25 p0012 A80-1189	
JUNGE, D. C. Investigation of the viability and cost effectiveness of solid fuel gasifiers close	The effect of classical and anomalous transport on the performance of Tandem Mirror reactors 25 p0079 A80~19596
coupled to internal combustion engines for 200 kWe power generation [DOE/RL-90476-13] 25 p0169 N80-1529	KAMPERSCHROER, J. H.  Doublet III neutral beam injection system overview
JUNGE, G.	25 p0079 A80-19599
Unconventional circuits for static voltage transformers	Measured and predicted beam attenuation in neutral beam drift ducts for tokamaks
[BMFT-FB-T-78-26] 25 p0107 N80-1136 JUBKHAN, G. H.	58 25 p0079 A80-19600 KANDLIKAR, S. G.
Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 N80-1370	Selection of working fluids for low temperature
•	25 p0024 A80-12751

PERSONAL AUTHOR INDEX KHODZHABY, A.

KANDPAL, T. C.

KANDPAL, T. C.	RAYLONCU, A. A.
Using a fin with a parabolic concentrator	Sugar crops as a source of fuels. Volume 1:
25 p0004 A80-10847	Agricultural research
KANB, B. L.	[TID-29400/1] 25 p0093 N80-10395
Calculations of inertial confinement fusion gains	RAYNE, H.
using a collective model for reheat,	Vehicle emissions control and its effect on engine
bremsstrahlung and fuel depletion for highly	development
efficient electrodynamic laser compressions	
25 p0058 A80-17875	EATURAWA, Ho. 25 p0037 A80-14708
KANG, D.	
	Simplified theory of nonuniform electrical
Elucidation of coal structural components by short	conduction for an open cycle HHD generator with
residence-time extractive liquefaction	shaped magnetic induction
25 p0119 N80-12188	25 p0047 A80-16997
KANOUSE, R.	RELLEDY, E.
National energy policy and state coastal programs:	The assessment of actual wind power availability
A critique of current efforts to balance	in Ireland
environmental protection and energy production	
along the coast	KELLER, W. E. 25 p0003 A80-10844
[SAN-0034/263-1] 25 p0141 N80-13643	ablubby we be
KANT, H. 25 POINT ROUTINGS	Some dc superconducting cables
	[LA-UR-79-1057] 25 p0107 N80-11348
Wind energy conversion system with electromagnetic	KELLRY, J. L.
stabiliser	Conceptual design of a Demonstration Tokamak
25 p0031 A80-13004	Hybrid Reactor (DTHR)
KAR, S.	[WFPS-TME-107] 25 p0132 N80-12898
Experimental study of MOS solar cells under	RELLY, J. T.
concentration	
25 p0026 A80-12769	Pilot scale evaluation of NOx combustion control
Experimental investigation of various barrier	for pulverized coal, phase 2
	[FB-299325/1] 25 p0180 N80-15687
metals for Schottky barrier and MOS solar cells	KEBBB, J. E.
25 p0027 A80-12776	Performance limits for liquid-metal heat pipes
KARADY, G.	containing long adiabatic sections
Electrical power system to TFTR poloidal coils	[LA-UR-79-1241] 25 p0095 N80-10472
25 p0080 A80-19620	KEMPER, W. D.
KARGER, P.	
Accumulation of impurities and stability behaviour	Trans-seasonal storage of solar energy:
	Innovative research program subtask
in the high-density regime of Pulsator	[C00-4546-3] 25 p0144 N80-13672
25 p0054 A80-17759	RENNINGTON, J.
KARLSSON, G.	Survey of the research into energy-economy
Utility fuel cells for Sweden	interactions. Volume 1: Survey
25 p0011 A80-11852	[HCP/I6346-01/1-VOL-1] 25 p0139 N80-13633
KARR, H. J.	KENNISH, W. J.
LASL toroidal reversed-field pinch programme	Validation methodology for solar heating and
25 p0054 A80-17809	cooling systems
KARTSOUNES, G. T.	
Underground pumped hydro storage: An overview	25 p0020 A80-12431
CONF 7040/6 41	RERN, B. C., JR.
[CONF-781046-1] 25 p0116 N80-11624	Optimization of photovoltaic/thermal collector
KASICH-PILIPENKO, I. E.	heat pump systems
Development of optical waveguides for a	[C00-4577-7] 25 p0124 N80-12566
power-related application	KERNER, W.
25 p0036 A80-14596	Dependence of ideal MHD beta limits on current
KATO, Y.	density and pressure profiles
Inertial confinement fusion research at Csaka	
25 p0057 A80-17868	25 p0054 A80-17790
KATZ, H.	RESSLER, R.
	High interaction subsonic MHD channel operation
Commercialization strategy report for electric and	[AIAA PAPER 80-0022] 25 p0062 A80-18242
hybrid vehicles	High interaction subsonic MHD channel operation [AIAA PAPER 80-0022] 25 p0062 A80-18242 KESTIN, J.
hybrid vehicles [TID-28858-DRAFT] 25 p0166 N80-14972	[AIAA PAPER 80-0022] 25 p0062 A80-18242 KESTIN, J.
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972 KAUPHAN, E. L.	[ATAM PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972 KAUPHAN, E. L.	[ATAM PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant
hybrid vehicles [TID-28858-DRAFT] 25 p0166 N80-14972	[AIAA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components
hybrid wehicles [TID-28858-DRAFT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms	[ATAA PAPER 80-0022] 25 p0062 A80-18242 KRSTIN, J. The influence of thermophysical properties on the design and sizing of geothermal power plant components [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal rower plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.
hybrid vehicles [TID-28858-DRAFT] 25 p0166 N80-14972  KAUPHAM, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New
hybrid vehicles [TID-28858-DRAFT] 25 p0166 N80-14972  KAUPNAM, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Hexico: A feasibility study
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal rower plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Hexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645
hybrid vehicles  [TID-28858-DRAFT] 25 p0166 N80-14972  KAUPHAM, E. L.  Energy policy and decision analysis; new concepts and mechanisms  [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645
hybrid vehicles [TID-28858-DRAFT] 25 p0166 N80-14972  KAUPHAM, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors	[ATAM PAPER 80-0022] 25 p0062 A80-18242  KRSTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Hexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. E.  The influence of thermophysical properties on the
hybrid vehicles [TID-28858-DRAFT] 25 p0166 N80-14972  KAUPHAM, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K.	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal rower plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Hexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K.	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. E.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUFMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K. Tearing modes in a plasma with magnetic braiding	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIN, F. A.
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIPA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPHAN, E. I.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. E.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K. Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAWAI, T. Hydrogen evolution from water using solid carbon	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIE, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAN, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KANAI, T.  Hydrogen evolution from water using solid carbon and light energy	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-293271/7] 25 p0179 N80-15645  KHALIFA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHADURDYEV, A.  Solar system with a hermetically and
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPHAN, E. I.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAWAI, T.  Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHAMDURDIEV, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K. Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAWAI, T. Hydrogen evolution from water using solid carbon and light energy  KAWAHURA, Y.	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHAMDURDIEV, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPHAN, E. I.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAWAI, T.  Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. E.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHANDURDYEY, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAWAI, T.  Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109  KAWAHURA, Y.  Inertial confinement fusion research at Osaka	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. E.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHADDURDYEV, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAUP, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAUAI, T.  Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109  KAWAHURA, Y.  Inertial confinement fusion research at Osaka 25 p0057 A80-17868	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KRSSIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Hexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. E.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0070 A80-10074  KHABDURDYEV, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices  KHATAHOV, S. O.
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L. Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C. Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K. Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAWAI, T. Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109  KAWAHURA, Y. Inertial confinement fusion research at Osaka 25 p0057 A80-17868	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. E.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHADDURDYEY, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices  KHATAMOV, S. O.  Investigation of aerodynamic drag of solar air
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAWAI, T.  Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109  KAWAHURA, Y.  Inertial confinement fusion research at Osaka 25 p0057 A80-17868  KAY, J.  Characterization of solid-waste conversion and	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIB, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHADDURDYEV, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices  KHATAMOV, S. O.  Investigation of aerodynamic drag of solar air heaters
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAN, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KANAI, T.  Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109  KAWAHURA, Y.  Inertial confinement fusion research at Osaka 25 p0057 A80-17868  KAI, J.  Characterization of solid-waste conversion and cogeneration systems	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. E.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHANDURDYEV, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices  KHATAMOV, S. O.  Investigation of aerodynamic drag of solar air heaters  25 p0044 A80-16631
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K. Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAWAI, T. Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109  KAWAHURA, Y. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  KAI, J. Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIFA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHADDURDYEV, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices  KHATAMOV, S. O.  Investigation of aerodynamic drag of solar air heaters  KHODZHARV, A.
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAWAI, T.  Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109  KAWAHURA, Y. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  KAY, J.  Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648  KAIE, W. G.	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study [PB-299271/7] 25 p0179 N80-15645  KHALIPA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHAMDURDYEV, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices  KHATAMOV, S. O.  Investigation of aerodynamic drag of solar air heaters  KHODZHAEV, A.  Results of interdepartmental tests of solar water
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-NS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAWAI, T.  Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109  KAWAHURA, Y.  Inertial confinement fusion research at Osaka 25 p0057 A80-17868  KAY, J.  Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648  KAIE, W. G.  Development of fluidised bed combustion in the	[ATAA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIPA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHAMDURDYEV, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices  KHATAMOV, S. O.  Investigation of aerodynamic drag of solar air heaters  Z5 p0044 A80-16631  KHODZHAEV, A.  Results of interdepartmental tests of solar water
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-MS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAWAI, T.  Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109  KAWAHURA, Y. Inertial confinement fusion research at Osaka 25 p0057 A80-17868  KAY, J.  Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648  KAIE, W. G.	[ATMA PAPER 80-0022] 25 p0062 A80-18242  KRSSTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIPA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHAMDURDIEV, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices  KHATAMOV, S. O.  Investigation of aerodynamic drag of solar air heaters  KHODZHAEV, A.  Results of interdepartmental tests of solar water heaters over an annual cycle. I
hybrid vehicles [TID-28858-DRAPT] 25 p0166 N80-14972  KAUPMAN, E. L.  Energy policy and decision analysis; new concepts and mechanisms [LA-7909-NS] 25 p0140 N80-13634  KAUSHIK, S. C.  Performance of an inexpensive constant flow solar collector/storage system in ground 25 p0003 A80-10846  Transient rise of plate temperature in solar collectors 25 p0023 A80-12746  KAW, P. K.  Tearing modes in a plasma with magnetic braiding 25 p0006 A80-11349  KAWAI, T.  Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109  KAWAHURA, Y.  Inertial confinement fusion research at Osaka 25 p0057 A80-17868  KAY, J.  Characterization of solid-waste conversion and cogeneration systems [LBL-7883] 25 p0141 N80-13648  KAIE, W. G.  Development of fluidised bed combustion in the	[ATAA PAPER 80-0022] 25 p0062 A80-18242  KESTIN, J.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KEYES, C. G., JB.  Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  KHALIPA, H. B.  The influence of thermophysical properties on the design and sizing of geothermal power plant components  [ASME PAPER 79-WA/HT-18] 25 p0070 A80-18593  KHAMIDULLIN, F. A.  Dynamics of diesel fuel combustion in turbulent flow 25 p0091 N80-10074  KHAMDURDYEV, A.  Solar system with a hermetically and nonhermetically vitrified regenerative heater and its energetic indices  KHATAMOV, S. O.  Investigation of aerodynamic drag of solar air heaters  Z5 p0044 A80-16631  KHODZHAEV, A.  Results of interdepartmental tests of solar water

25 p0059 A80-17885

RHOLEVA, B. H.  Analysis of the optical characteristics of silicon photoelectric converters with bilateral	MEASurement of insolation using CdS photoresistor 25 p0047 A80-16998
sensitivity 25 p0044 A80-16628 KHOLBOV, IU. V.	KHASEL, T. H. Validation methodology for solar heating and cooling systems
Current equilibrium and effective ion charge in	25 p0020 A80-12431
L-2 stellarator plasma 25 p0055 A80-17829	KBECHTLI, B. Electron radiation damage of (AlGa) As-GaAs solar
KIEFFER, J. C. Evidence of nonlinear processes from X-ray spectra	cells [NASA-CR-162425] 25 p0110 N80-11564
of CO2 laser-irradiated targets	KNISELEY, R. H.
25 p0046 A80-16776 KILGORR, W. C. International energy assessment	Photothermal conversion surface measurements using photoacoustic and photothermal spectroscopies [IS-M-202] 25 p0129 N80-12611
[DOE/EIA-0184/1] 25 p0174 N80-15594 KIM, D. K.	KHOCHE, K. F. Absorption heat pumps for solar space heating
Catalyst development for coal liquefaction [PPRI-AF-1084] 25 p0136 N80-13292	systems
KIN, J. K.	XHOEPPEL, H. 25 p0036 A80-14672
Relating computer simulation studies with interface state measurements on MIS solar cells	Hard X-ray measurements 25 p0045 A80-16722
25 p0062 A80-18231 KIMBLE, B. J.	NNOX, C. E. Preliminary test results of a flight management
Tetrachlorodibenzo-p-dioxin quantitation in stack-collected coal fly ash	algorithm for fuel conservative descents in a time based metered traffic environment
25 p0053 A80-17710 KINNEY, W. L.	[NASA-TH-80194] 25 p0150 N80-14114 KOCAY, C. A.
Surface water quality parameters for monitoring oil shale development	Research on the dynamics of band-supported flywheel systems
[PB-297984/7] 25 p0153 N80-14470	[SAND-78-7074] 25 p0128 N80-12597
KIPPENHAN, C. J.  The simulation of building heat transfer for	Critical speeds and natural frequencies of rim-type composite-material flywheels
passive solar systems [ASME PAPER 79-WA/SOL-38] 25 p0067 A80-18574	[SAND-78-7049] 25 p0176 N80-15622 KOCH, K. A.
KISHIHEVSKII, H. E. Transverse particle losses in axially asymmetrical	Doublet III neutral beam injection system overview and status report
open traps 25 p0055 A80-17840	25 p0079 A80-19599 KOCH, V. R.
KLAPSTE, B.	Corrosion protection of solar-collector heat
Non-sintered plastic-bonded nickel oxide electrodes with open structure and their electrochemical performance	exchangers with electrochemically deposited films [COO-4297-1] 25 p0171 N80-15569 KODAIRA, J.
25 p0009 A80-11839 KLARE, K. A.	Constant current and constant voltage excitation of large coils by flywheel-generator-converter
An overview of Controlled Thermonuclear Research	25 p0080 A80-19624
Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory	KOELLING, G. Current German developments in coal liquefaction
25 p0022 A80-12628 KLEIN, S. A.	technology 25 p0015 A80-11965
Computers in the design of solar energy systems 25 p0020 A80-12426	KOENIG, D. R: Baseline design of the thermoelectric reactor
A method of estimating monthly average solar radiation on shaded receivers	space power system [LA-UR-79-1242] 25 p0149 N80-13906
25 p0060 A80-18123	KOEPPENDOERFER, W.
KLEIB, W. E.  Modified aerospace reliability and quality  assurance method for wind turbines	A simple model describing hydrogen re-cycling in fusion experiments and its influence on discharge behaviour
[NASA-TM-79284] 25 p0137 N80-13490 KLEMENT, G.	25 p0022 A80-12453 KOGER, T.
Testing and performance of the 30 kA ohmic heating system for ASDEX	EPA utility FGD (Flue Gas Desulfurization) survey: December 1978 - January 1979
25 p0078 A80-19585 KLEMETSON. S. L.	[PB-299399/6] 25 p0179 N80-15682
Energy development vs water quality in the upper	Deep space network feasibility study of
Colorado and upper Missouri River Basins [LA-7497-MS] 25 p0117 N80-11641	terminating Southern California Edison electrical service to Goldstone
KLEPEIS, J. E. Coal-fired open cycle MHD combustion plasmas -	XOHLI, J. C. 25 p0091 N80-10263
Chemical equilibrium and transport properties workshop results	Doublet III neutral beam injection system overview and status report
[AIAA PAPER 80-0091] 25 p0063 A80-18265 KLIMAS, P. C.	25 p0079 A80-19599 KOHLMUELLER, H.
Darrieus wind turbine program at Sandia Laboratories	The conversion of ethylene glycol with air in
[SAND-79-0997C] 25 p0160 N80-14538 KLINE, B.	alkaline fuel cells 25 p0011 A80-11850
Environmental data for energy technology policy analysis. Volume 1: Summary	KOIDAB, V. S. Investigation of plasma heating by powerful
[HCP/EV6119-1] 25 p0098 N80-10629 KLINGELHOEPER, R.	relativistic electron beams 25 p0056 A80-17857
Construction and test of a high power injector of	KOIDE, G.
hydrogen cluster ions 25 p0080 A80-19618	Solar/wind handbook for Hawaii: Technical applications for Hawaii, the Pacific Basin and
KLUEBER, O. Accumulation of impurities and stability behaviour	sites worldwide with similar climatic conditions [UCRI-15053] 25 p0177 N80-15628
in the high-density regime of Pulsator 25 p0054 A80-17759	KOLBASOV, B. N. Concept of tokamak-type reactor with
23 P003- 200 (1773)	high-temperature blanket

PERSONAL AUTHOR INDEX KUDRIN, O. I.

KOLBENSON, C. H.

KRRINIR, L. B. NIBIB, L. B. Solar panels exposed to cosmic rays 25 p0008 A80-11825 Computer analysis of grids currently used for CdS/Cu2S solar cells Photoelectric parameters of photoelectric converters in relation to illumination 25 p0089 A80-20893' KONIUKHOV, V. V. Investigation of plasma heating by powerful 25 p0044 A80-16627 relativistic electron beams KREJCI, I. Non-sintered plastic-bonded nickel oxide electrodes with open structure and their electrochemical performance 25 p0056 A80-17857 KONKEL, R. S. Socioeconomic data requirements for environmental assessment: Coal gasification and liquefaction 25 p0009 A80-11839 KRESHCHUK, A. P.
Principles of plasma heating and confinement in a compact toroidal configuration
25 n0055 A80-17 projects [CONF-780843-5] 25 p0103 N80-10693 KOPPANY, C. R. Experimental enthalpies for a mixture of 80 mole 25 p0055 A80-17822 RRESOVICE, S. percent isobutane in isopentane [ EPRI-ER-1034 ] 25 p0118 N80-11935 Sugar crops as a source of fuels. Volume 1: Agricultural research KOBNEY, B. I.

Current equilibrium and effective ion charge in
L-2 stellarator plasma [TID-29400/1] 25 p0093 N80-10395 RRICHRO, A. A.

Progress and development trends in coal
gasification and liquefaction technologies 25 p0055 A80-17829 KORNILOV, V. A.
Investigation of plasma heating by powerful
relativistic electron beams 25 p0031 A80-12945 RRIKOBIAN, O. H.

Process design and economic analysis of the zinc selenide thermochemical hydrogen cycle [UCRL-52546] 25 p0164 N80-14571 25 p0056 A80-17857 Partial discharge performance of lapped plastic insulation for superconducting power KROEGER, F. A.

Low cost solar cells based on amorphous silicon
electrodeposited from organic solvents transmission cables and the dielectric strength of supercritical helium gas
[BNL-24779] 25 p0170 N80-15: [SAN-0113-T3] 25 p0145 N80-13678 25 p0170 N80-15346 ROSHBLETS, V. P.
Effect of microwave radiation on the RROLL, P.
Geothermal energy market study on the Atlantic coastal plain. Economic evaluation model for direct use of moderate temperature, up to 250 F, geothermal resources in the northern Atlantic voltage-current characteristics of a variable-thickness Josephson microbridge 25 p0035 A80-14430 KOSSON, R. coastal plain [FB-298785/7] Performance testing of a hydrogen heat pire
[AIAA PAPER 80-0212] 25 p0064 A80-18379 25 p0165 N80-14578 KROMENBERG, M. L.
Projected mechanism for thionyl chloride and KOTHABI, H. Review of the work done at C.E.B.B.I. on the development of single crystal silicon solar cells for use with concentrated light sulphuryl chloride cathode reactions 25 p0012 A80-11856 KRONER, W. M.

Barriers to the application of wind energy conversion systems in urban settings
25 no.155 25 p0027 A80-12777 KOTTAPALLI, S. B. R.
Aeroelastic stability and response of horizontal
axis wind turbine blades 25 p0155 N80-14494 KRUGLIAKOV, R. P.
Investigation of plasma heating by powerful 25 p0032 A80-13116 KOUDELKA, V. relativistic electron beams Non-sintered plastic-bonded nickel oxide electrodes with open structure and their electrochemical performance 25 p0056 A80-17857 KRUIDHOF, W. Cobalt oxide as a spectrally selective material 25 p0009 A80-11839 for use in solar collectors Plastic bonded electrodes for nickel-cadmium 25 p0086 A80-20719 accumulators. I - Cadmium electrode KRUPKA. M. C. 25 p0043 A80-16147 Selected results from the technology assessment of ROUTS, H.
Pusion energy for hydrogen production solar energy program [LA-UR-79-950] 25 p0099 N80-10637 RRUPTA, M. C.

Decentralized solar photovoltaic energy systems

25 p0171 N80-15565 [BNL-24906] 25 p0180 N80-15897 KOVALSKII, R. V.
Maximum cold-generation capacity of thermoelectric refrigerators KU, A. C. Small solar thermal electric power plants with early commercial potential [ASME PAPER 79-WA/SOL-9] Investigation of the applicability of technical systems utilizing solar energy for the heat 25 p0069 A80-18586 KUBASCO, A. J. Characterization and combustion of SRC 2 fuel oil 25 p0119 N80-12192 supply of buildings
[BMFT-FB-T-78-48]
KRAFT, M. L.
Coal sulfur measurements 25 p0116 N80-11630 KUCUK, P. Thermodynamic behaviour of the Bagnore geothermal [PB-299575/1] 25 p0169 N80-15294 field KRAJEUSKI, R. F. 25 p0075 A80-19205 Case study of the Brownell low energy requirement KUCZERA, M. Calculation of steam generation with parabolic house [BNL-50968] 25 p0142 N80-13651 solar collectors KRAKOWSKI, R. A.
Synfuel (hydrogen) production from fusion power
[LA-UR-79-1115] 25 p0136 N80-13296 25 p0039 A80-15328 KUDIRKA, A. A.
Advanced solar thermal receiver technology KRALL, N. A. [AIAA PAPEB 80-0292] 25 p0063 A80-18297 Drift wave stability and transport theory in RUDRIN, O. I. Investigation of absorptive and radiative fusion systems 25 p0056 A80-17846 characteristics of an ideal selective surface 25 p0044 A80-16632 MBER, S.
International activities: The fiscal year 1978
survey of international programs at NEL
(PR-300491/8) 25 p0181 N80-16004 KUDRIN, O. I. Selective ray-absorption as means of increasing the efficiency of a high-temperature solar

energy system

Second-law analysis of solar-thermal processes 25 p0003 A80-10843

25 p0036 A80-14597

KUERL, D.		RUSCHBER, M.	
The conversion of ethylene glycol	with air in	Fusion energy for hydrogen product	
alkaline fuel cells	25 p0011 A80-11850	[BNL-24906] RUSH, B. A.	25 p0180 N80-15897
KUESTER, J. L.		Performance of heat pumps at eleva	ated evaporating
Conversion of cellulosic and waste	polymer	temperatures - With application	
material to gasoline		[ASME PAPER 79-WA/SOL-19]	25 p0069 A80-18587
	25 p0169 N80-15291	RUSTON, R.	shilian
KUPA, R. N. Determination of the geometry of t	he transition	Impact of technology and maintains economic aspects of tokamak power	
region of a series HHD generator		cooled depects of conduct power	25 p0059 A80-17884
	25 p003C A80-12900	KUSTON, R. L.	
Influence of the loading factor on		Power supply requirements for a to	okamak fusion
characteristics of series MHD ge		reactor	05 0000 000 000
Characteristics of series channels	25 p0061 A80-18137	Power supply requirements for a to	25 p0003 A80-10474
diminishing electrode-commutatio		reactor	JRAMAK TUSION
transition section	a dagre in the		25 p0104 N80-10918
	25 p0061 A80-18139	KUSY, V.	•
KUHLMANN-WILSDORP, D.	• •	Analysis of tarry fractions in emi	
New development and applications i		from low temperature oxidation of	
Proceedings of the Symposium, St October 16, 17, 1978	. Louis, Ho.,	KUTAS, R. I.	25 p0007 A80-11448
	25 p0040 A80-15501	Heat flow and heat transfer condit	tions in the
KUHN, H.	-	bottom sediments of the equatori	
Synthetic molecular organizates			25 p0075 A80-19048
	25 p0073 A80-18752	KUTATELADZE, S. S.	.1
KULADOVA, H. A.  Results of interdepartmental tests	of solar water	Energetics aspects of environmenta	25 p0072 A80-18733
heaters over an annual cycle. I	or sorar racer	RUTHY, A.	25 POUL ROU 10755
	25 p0051 A80-17245	Boundary layer analysis of cold-bl	lanket systems
KULAGIN, V. D.			25 p0058 A80-17877
Kinetics of the processes in a pla		ROOS, H.	
an electron beam in a dense iner	t gas 25 p0007 A80-11612	Design of antennae for R.F. power tokamak plasma in the ion cyclot	
KULLMAN, B. C.	23 90007 800 11012	frequency	cion lange of
Energy storage systems for automob	ile propulsion,	11	25 p0079 A80-19608
1978 study. 1: Overview and fi		KUUSKRAA, V. A.	_
	25 p0 105 N80-10970	The controlling production mechani	ism of methane
Energy storage system for automobi 1978 study. 2: Detailed report		gas from coalbeds	25 p0085 180-20499
	25 p0181 N80-15995	KUZIN, A. P.	25 p0065 #60-20499
KULSHRESHTHA, A. P.		Dynamics of diesel fuel combustion	in turbulent flow
Cadmium telluride solar cells			25 p0091 N80-10074
	25 p0026 A80-12765	RUZNETSOV, Si B.	
Theoretical consideration of curve		Conduction-type MHD generator with	
Theoretical consideration of curve solar cells	fill factor in		terial
Theoretical consideration of curve solar cells		Conduction-type MHD generator with	
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para	fill factor in 25 p0026 A80-12768	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M. Barriers to the application of wir	terial 25 p0030 A80-12898 nd energy
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series	fill factor in 25 p0026 &80-12768 bolic	Conduction-type MHD generator with motion of the hybrid working mat KWARTLEB, M.	terial 25 p0030 A80-12898 ad energy tings
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series	fill factor in 25 p0026 A80-12768	Conduction-type MHD generator with motion of the hybrid working mat KWARTLES, M. Barriers to the application of wir conversion systems in urban sett	terial 25 p0030 A80-12898 nd energy
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.	fill factor in 25 p0026 A80-12768 bolic 25 p0024 A80-12749	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of wir conversion systems in urban sett KWATHY, H. G.	terial 25 p0030 A80-12898 ad energy tings
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series	fill factor in 25 p0026 A80-12768 bolic 25 p0024 A80-12749	Conduction-type MHD generator with motion of the hybrid working mat KWARTLES, M. Barriers to the application of wir conversion systems in urban sett	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators	fill factor in 25 p0026 A80-12768 bolic 25 p0024 A80-12749	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of wir conversion systems in urban sett KWATHY, H. G.	terial 25 p0030 A80-12898 ad energy tings
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUMAR, B. B.	fill factor in 25 p0026 A80-12768  bolic 25 p0024 A80-12749  umination type 25 p0026 A80-12766	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of wir conversion systems in urban sett KWATHY, H. G.	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUMDU, H. M.  Review of the work done at C.E.E.R	fill factor in  25 p0026 A80-12768  bolic  25 p0024 A80-12749  umination type  25 p0026 A80-12766  .I. on the	Conduction-type MHD generator with motion of the hybrid working mat  KWARTLEB, M.  Barriers to the application of wir conversion systems in urban sett  KWATHY, H. G.  Area load-frequency control	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUUDU, H. H.  Review of the work done at C.E.E.R development of single crystal si	fill factor in 25 p0026 &80-12768  bolic 25 p0024 &80-12749  umination type 25 p0026 &80-12766  .I. on the licon solar	Conduction-type MHD generator with motion of the hybrid working mat  KWARTLEB, M. Barriers to the application of wir conversion systems in urban sett  KWATHY, H. G. Area load-frequency control	terial 25 p0030 A80-12898 and energy tings 25 p0155 N80-14494 25 p0022 A80-12735
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. N.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated	fill factor in 25 p0026 &80-12768  bolic 25 p0024 &80-12749  umination type 25 p0026 &80-12766  .I. on the licon solar	Conduction-type MHD generator with motion of the hybrid working mat  KWARTLEB, M.  Barriers to the application of wir conversion systems in urban sett  KWATHY, H. G.  Area load-frequency control	terial 25 p0030 A80-12898 and energy tings 25 p0155 N80-14494 25 p0022 A80-12735
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUMDU, H. H.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.	fill factor in 25 p0026 &80-12768 holic 25 p0024 &80-12749 umination type 25 p0026 &80-12766 .I. on the licon solar light 25 p0027 &80-12777	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of wir conversion systems in urban sett KWATNY, H. G.  Area load-frequency control  LA-THANN, H.  Distribution and movement of elect cells and batteries	terial 25 p0030 A80-12898 and energy tings 25 p0155 N80-14494 25 p0022 A80-12735
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. H.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f	fill factor in 25 p0026 &80-12768 holic 25 p0024 &80-12749 umination type 25 p0026 &80-12766 .I. on the licon solar light 25 p0027 &80-12777	Conduction-type MHD generator with motion of the hybrid working mat  KWARTLEE, M.  Barriers to the application of wir conversion systems in urban sets  KWARTNY, H. G.  Area load-frequency control  LA-THANN, H.  Distribution and movement of electicells and batteries  LAASKO, J. H.	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. N.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand	fill factor in  25 p0026 A80-12768  bolic  25 p0024 A80-12749  umination type  25 p0026 A80-12766  .I. on the licon solar light 25 p0027 A80-12777  luidized bed	Conduction-type MHD generator with motion of the hybrid working mat KWARTLEE, M.  Barriers to the application of win conversion systems in urban sett KWATHY, H. G. Area load-frequency control  LA-THANN, H. Distribution and movement of elect cells and batteries  LAASKO, J. H. Linear concentration solar collect	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAE, S.  Performance studies on uniform ill nontracking concentrators  KUMDU, H. H.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a freactor with circulating sand	fill factor in 25 p0026 &80-12768 holic 25 p0024 &80-12749 umination type 25 p0026 &80-12766 .I. on the licon solar light 25 p0027 &80-12777	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of wir conversion systems in urban sett KWATNY, H. G.  Area load-frequency control  LA-THANN, H.  Distribution and movement of elect cells and batteries  LAASKO, J. H.  Linear concentration solar collect supported enclosure. Preliminal	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air try design study
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. N.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand	fill factor in 25 p0026 A80-12768  bolic 25 p0024 A80-12749  umination type 25 p0026 A80-12766  .I. on the licon solar light 25 p0027 A80-12777  luidized bed 25 p0074 A80-18868	Conduction-type MHD generator with motion of the hybrid working mat KWARTLEE, M.  Barriers to the application of win conversion systems in urban sett KWATHY, H. G. Area load-frequency control  LA-THANN, H. Distribution and movement of elect cells and batteries  LAASKO, J. H. Linear concentration solar collect	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAE, S.  Performance studies on uniform ill nontracking concentrators  KUMDU, H. H.  Review of the work done at C.E.E.E development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBANKULIEV, CB.  Solar system with a hermetically a nonhermetically vitrified regene	fill factor in 25 p0026 A80-12768 holic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of wir conversion systems in urban sett KWATNY, H. G.  Area load-frequency control  LA-THAMN, H.  Distribution and movement of elect cells and batteries  LAASKO, J. B.  Linear concentration solar collect supported enclosure. Preliminar [SAND-78-7022]  LBBARN, KD.  On the substitution of petroleum h	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air try design study 25 p0141 N80-13644 by other energy
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. H.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBANKULIEV, CB.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices	fill factor in 25 p0026 A80-12768  bolic 25 p0024 A80-12749  umination type 25 p0026 A80-12766  .I. on the licon solar light 25 p0027 A80-12777  luidized bed 25 p0074 A80-18868  nd rative heater	Conduction-type MHD generator with motion of the hybrid working mat  KWARTLER, M.  Barriers to the application of wir conversion systems in urban sets  KWARTNI, H. G.  Area load-frequency control  LA-THAMM, H.  Distribution and movement of electicals and batteries  LAASKO, J. H.  Linear concentration solar collect supported enclosure. Preliminate (SAND-78-7022)  LABARM, KD.  On the substitution of petroleum M sources - Using the energy econd	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air try design study 25 p0141 N80-13644 by other energy
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. N.  Review of the work done at C.E.P.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBANKULIEV, CB.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices	fill factor in 25 p0026 A80-12768 holic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of wir conversion systems in urban sett KWATNY, H. G.  Area load-frequency control  LA-THAMN, H.  Distribution and movement of elect cells and batteries  LAASKO, J. B.  Linear concentration solar collect supported enclosure. Preliminar [SAND-78-7022]  LBBARN, KD.  On the substitution of petroleum h	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy omics of West
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. H.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBANKULIEV, CB.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices	fill factor in 25 p0026 A80-12768 holic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd rative heater 25 p0051 A80-17244	Conduction-type MHD generator with motion of the hybrid working mat KWARTLEB, M.  Barriers to the application of wir conversion systems in urban sett KWATHY, H. G.  Area load-frequency control  LA-THAMM, H.  Distribution and movement of elect cells and batteries  LAASKO, J. H.  Linear concentration solar collect supported enclosure. Preliminar [SAND-78-7022]  LBBARM, KD.  On the substitution of petroleum in sources - Using the energy economic germany as an example	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air try design study 25 p0141 N80-13644 by other energy
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. N.  Review of the work done at C.E.P.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBANKULIEV, CB.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor withigh-temperature blanket	fill factor in 25 p0026 A80-12768 holic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd rative heater 25 p0051 A80-17244 th	Conduction-type MHD generator with motion of the hybrid working mat KWARTLEE, M.  Barriers to the application of win conversion systems in urban sett KWATHY, H. G.  Area load-frequency control  LA-THAMM, H.  Distribution and movement of elect cells and batteries  LAASKO, J. H.  Linear concentration solar collect supported enclosure. Preliminate [SAND-78-7022]  LABAHN, KD.  On the substitution of petroleum h sources - Using the energy econogermany as an example  LACKMEE, K.  Dependence of ideal MHD beta limit	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy mics of West 25 p0074 A80-19000
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUMDU, H. H.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBANKULIEV, CH.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor withigh-temperature blanket	fill factor in 25 p0026 A80-12768 holic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd rative heater 25 p0051 A80-17244	Conduction-type MHD generator with motion of the hybrid working mat  KWARTLEE, M.  Barriers to the application of wir conversion systems in urban sets  KWATNY, H. G.  Area load-frequency control  LA-THANN, H.  Distribution and movement of elect cells and batteries  LAASKO, J. H.  Linear concentration solar collect supported enclosure. Preliminar (SAND-78-7022)  LABARN, KD.  On the substitution of petroleum in sources - Using the energy economic Germany as an example  LACKBEE, K.	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy omics of West 25 p0074 A80-19000 ts on current
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. H.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBAHKULIEV, CH.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor wi high-temperature blanket  KURSTED, H. A.	fill factor in 25 p0026 A80-12768  bolic 25 p0024 A80-12749  umination type 25 p0026 A80-12766  .I. on the licon solar light 25 p0027 A80-12777  luidized bed 25 p0074 A80-18868  nd rative heater 25 p0051 A80-17244  th	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of wir conversion systems in urban sets.  KWARTNY, H. G.  Area load-frequency control  LA-THAMM, H.  Distribution and movement of electricals and batteries.  LAASKO, J. H.  Linear concentration solar collect supported enclosure. Preliminar (SAND-78-7022)  LABABH, KD.  On the substitution of petroleum Macources - Using the energy economic Germany as an example.  LACKNEE, K.  Dependence of ideal MHD beta limit density and pressure profiles	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy mics of West 25 p0074 A80-19000
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUMDU, H. N.  Review of the work done at C.E.E.B. development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBANKULIEV, CB.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor withigh-temperature blanket  KURSTED, H. A.  Modeling and experimental analysis	fill factor in 25 p0026 A80-12768  bolic 25 p0024 A80-12749  umination type 25 p0026 A80-12766  .I. on the licon solar light 25 p0027 A80-12777  luidized bed 25 p0074 A80-18868  nd rative heater 25 p0051 A80-17244  th	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of win conversion systems in urban sets.  KWARTLY, H. G. Area load-frequency control  LA-THAMM, H. Distribution and movement of electricals and batteries  LAASKO, J. H. Linear concentration solar collect supported enclosure. Preliminar [SAND-78-7022]  LABAHN, KD. On the substitution of petroleum h sources - Using the energy economic germany as an example  LACKMER, K. Dependence of ideal MHD beta limit density and pressure profiles  LADY, G. H.	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy omics of West 25 p0074 A80-19000 ts on current 25 p0054 A80-17790
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. H.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBAHKULIEV, CH.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor withigh-temperature blanket  KURSTED, H. A.  Modeling and experimental analysis generator [ASME PAPPER 79-DET-9]	fill factor in 25 p0026 A80-12768  bolic 25 p0024 A80-12749  umination type 25 p0026 A80-12766  .I. on the licon solar light 25 p0027 A80-12777  luidized bed 25 p0074 A80-18868  nd rative heater 25 p0051 A80-17244  th	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of wir conversion systems in urban sets to the application of wir conversion systems in urban sets to the application of wir conversion systems in urban sets to the application of wir conversion systems in urban sets to the application of wir conversion systems in urban sets to the application of the sets to the application of the sets of the application of the substitution of the sources - Using the energy economic germany as an example  LACKBER, K.  Dependence of ideal MHD beta limit density and pressure profiles  LADY, G. M.  Economic structure, aggregate product of the demand for energy as an	terial 25 p0030 A80-12898 and energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy omics of West 25 p0074 A80-19000 ts on current 25 p0054 A80-17790 duction functions intermediate
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. N.  Review of the work done at C.E.P.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBANKULIEV, CB.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor withigh-temperature blanket  KURSTED, H. A.  Modeling and experimental analysis generator [ASME PAPPE 79-DET-9]  KURTHULLARV, R. KH.	fill factor in 25 p0026 A80-12768 holic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd rative heater 25 p0051 A80-17244 th 25 p0059 A80-17885 of a fluidic 25 p0041 A80-15705	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of win conversion systems in urban sets.  KWARTLY, H. G.  Area load-frequency control  LA-THAMM, H.  Distribution and movement of electricals and batteries  LAASKO, J. H.  Linear concentration solar collect supported enclosure. Preliminar [SAND-78-7022]  LABAHN, KD.  On the substitution of petroleum h sources - Using the energy economy of the substitution of petroleum h sources - Using the energy economy as an example  LACKBER, K.  Dependence of ideal HHD beta limit density and pressure profiles  LADY, G. H.  Economic structure, aggregate profined and the demand for energy as an product: A preliminary analysis	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy omics of West 25 p0074 A80-19000 ts on current 25 p0054 A80-17790 fluction functions intermediate
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. H.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBAHNULIEV, CH.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor withigh-temperature blanket  KURSTED, H. A.  Modeling and experimental analysis generator [ASME PAPPE 79-DET-9]  KURTHULLARY, R. KH.  Principles of plasma heating and concentrations.	fill factor in 25 p0026 A80-12768 holic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd rative heater 25 p0051 A80-17244 th 25 p0059 A80-17885 of a fluidic 25 p0041 A80-15705	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of win conversion systems in urban sett KWATHY, H. G.  Area load-frequency control  LA-THAMM, H.  Distribution and movement of elect cells and batteries  LAASKO, J. H.  Linear concentration solar collect supported enclosure. Preliminar [SAND-78-7022]  LABARM, KD.  On the substitution of petroleum M sources - Using the energy econd Germany as an example  LACKMER, K.  Dependence of ideal MHD beta limit density and pressure profiles  LADY, G. M.  Economic structure, aggregate profined and the demand for energy as an product: A preliminary analysis [DOE/EIA-0103/8]	terial 25 p0030 A80-12898 and energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy omics of West 25 p0074 A80-19000 ts on current 25 p0054 A80-17790 duction functions intermediate
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. H.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBAHKULIEV, CH.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor wi high-temperature blanket  KURSTED, H. A.  Modeling and experimental analysis generator [ASME PAPPE 79-DET-9]  KURTHULLAEW, R. KH.  Principles of plasma heating and ocompact toroidal configuration	fill factor in 25 p0026 A80-12768 bolic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd rative heater 25 p0059 A80-17244 th 25 p0059 A80-17885 of a fluidic 25 p0041 A80-15705 onfinement in a	Conduction-type MHD generator with motion of the hybrid working mat MHARTLER, M.  Barriers to the application of wir conversion systems in urban sets.  KWARTNI, H. G.  Area load-frequency control  LA-THANN, H.  Distribution and movement of elect cells and batteries  LAASKO, J. H.  Linear concentration solar collect supported enclosure. Preliminal [SAND-78-7022]  LABARN, KD.  On the substitution of petroleum in sources - Using the energy economic germany as an example  LACKBER, K.  Dependence of ideal MHD beta limit density and pressure profiles  LADY, G. M.  Economic structure, aggregate profined in the demand for energy as an product: A preliminary analysis [DOE/EIA-0103/8]  LAEDRACH, P.	terial 25 p0030 A80-12898 and energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy omics of West 25 p0074 A80-19000 ts on current 25 p0054 A80-17790 duction functions intermediate 5 25 p0096 N80-10607
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. H.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBAHKULIEV, CH.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor wi high-temperature blanket  KURSTED, H. A.  Modeling and experimental analysis generator [ASME PAPPE 79-DET-9]  KURTHULLAEW, R. KH.  Principles of plasma heating and ocompact toroidal configuration	fill factor in 25 p0026 A80-12768 holic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd rative heater 25 p0051 A80-17244 th 25 p0059 A80-17885 of a fluidic 25 p0041 A80-15705	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of win conversion systems in urban sets.  KWARTLY, H. G.  Area load-frequency control  LA-THAMM, H.  Distribution and movement of electrical and batteries  LAASKO, J. H.  Linear concentration solar collectric supported enclosure. Preliminary [SAND-78-7022]  LABAHN, KD.  On the substitution of petroleum his sources - Using the energy economy of the energy as an example  LACKBER, K.  Dependence of ideal MHD beta limit density and pressure profiles  LADY, G. M.  Economic structure, aggregate profiles and the demand for energy as an product: A preliminary analysis [DCZ/EIA-0103/8]  LAEDBACH, P.  Laser fusion implications of reson	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy mics of West 25 p0074 A80-19000 ts on current 25 p0054 A80-17790 duction functions intermediate s 25 p0096 N80-10607 mance absorption
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUNDU, H. H.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBAHKULIEV, CH.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor wi high-temperature blanket  KURSTED, H. A.  Modeling and experimental analysis generator [ASME PAPPE 79-DET-9]  KURTHULLAEW, R. KH.  Principles of plasma heating and compact toroidal configuration  KURZ, U.  Diffusion of tritium in neutron-ir	fill factor in 25 p0026 A80-12768 holic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd rative heater 25 p0051 A80-17244 th 25 p0059 A80-17885 of a fluidic 25 p0041 A80-15705 onfinement in a	Conduction-type MHD generator with motion of the hybrid working mat MHARTLER, M.  Barriers to the application of wir conversion systems in urban sets.  KWARTNI, H. G.  Area load-frequency control  LA-THANN, H.  Distribution and movement of elect cells and batteries  LAASKO, J. H.  Linear concentration solar collect supported enclosure. Preliminal [SAND-78-7022]  LABARN, KD.  On the substitution of petroleum in sources - Using the energy economic germany as an example  LACKBER, K.  Dependence of ideal MHD beta limit density and pressure profiles  LADY, G. M.  Economic structure, aggregate profined in the demand for energy as an product: A preliminary analysis [DOE/EIA-0103/8]  LAEDRACH, P.	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy mics of West 25 p0074 A80-19000 ts on current 25 p0054 A80-17790 duction functions intermediate s 25 p0096 N80-10607 mance absorption
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUMDU, H. N.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBANKULIEV, CB.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor wi high-temperature blanket  KURSTED, H. A.  Modeling and experimental analysis generator  [ASME PAPPE 79-DET-9]  KURTBULLAEV, R. KH.  Principles of plasma heating and compact toroidal configuration  KURZ, U.  Diffusion of tritium in neutron-ir microorystalline Beta-Li5AlO4	fill factor in 25 p0026 A80-12768 holic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd rative heater 25 p0051 A80-17244 th 25 p0059 A80-17885 of a fluidic 25 p0041 A80-15705 onfinement in a 25 p0055 A80-17822 radiated	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of win conversion systems in urban sets.  KWARTLY, H. G.  Area load-frequency control  LA-THAMM, H.  Distribution and movement of electricals and batteries  LAASKO, J. H.  Linear concentration solar collect supported enclosure. Preliminar [SAND-78-7022]  LABAHN, KD.  On the substitution of petroleum in sources - Using the energy economy of the substitution of petroleum in sources - Using the energy economy as an example  LACKMER, K.  Dependence of ideal MHD beta limit density and pressure profiles  LADY, G. M.  Economic structure, aggregate product: A preliminary analysis [DCZ/EIA-0103/8]  LAEDRACH, P.  Laser fusion implications of resonand associated electrostatic fidensity G. E.	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy omics of West 25 p0074 A80-19000 ts on current 25 p0054 A80-17790 fluction functions intermediate s 25 p0096 N80-10607 mance absorption eld pressure 25 p0057 A80-17869
Theoretical consideration of curve solar cells  KUHAR, R.  Performance of solid compound para concentrators in series  KUHAR, S.  Performance studies on uniform ill nontracking concentrators  KUHDU, H. M.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBANKULIEV, CB.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor withigh-temperature blanket  KURSTED, H. A.  Modeling and experimental analysis generator [ASME PAPPE 79-DET-9]  KURTHULLIEV, R. KH.  Principles of plasma heating and compact toroidal configuration  KURZ, U.  Diffusion of tritium in neutron-ir microcrystalline Beta-Li5AlO4	fill factor in 25 p0026 A80-12768 holic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd rative heater 25 p0051 A80-17244 th 25 p0059 A80-17885 of a fluidic 25 p0041 A80-15705 onfinement in a	Conduction-type MHD generator with motion of the hybrid working mat MHARTLER, M.  Barriers to the application of win conversion systems in urban sett with the sett of the application of win conversion systems in urban sett with the sett of the set of the set of the system of the set of	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy omics of West 25 p0074 A80-19000 ts on current 25 p0054 A80-17790 fluction functions intermediate s 25 p0096 N80-10607 mance absorption eld pressure 25 p0057 A80-17869
Theoretical consideration of curve solar cells  KUMAR, R.  Performance of solid compound para concentrators in series  KUMAR, S.  Performance studies on uniform ill nontracking concentrators  KUMDU, H. N.  Review of the work done at C.E.E.R development of single crystal si cells for use with concentrated  KUNII, D.  Gasification of solid waste in a f reactor with circulating sand  KURBANKULIEV, CB.  Solar system with a hermetically a nonhermetically vitrified regene and its energetic indices  KURBATOV, D. K.  Concept of tokamak-type reactor wi high-temperature blanket  KURSTED, H. A.  Modeling and experimental analysis generator  [ASME PAPPE 79-DET-9]  KURTBULLAEV, R. KH.  Principles of plasma heating and compact toroidal configuration  KURZ, U.  Diffusion of tritium in neutron-ir microorystalline Beta-Li5AlO4	fill factor in 25 p0026 A80-12768 bolic 25 p0024 A80-12749 umination type 25 p0026 A80-12766 .I. on the licon solar light 25 p0027 A80-12777 luidized bed 25 p0074 A80-18868 nd rative heater 25 p0051 A80-17244 th 25 p0059 A80-17885 of a fluidic 25 p0041 A80-15705 onfinement in a 25 p0055 A80-17822 radiated 25 p0081 A80-19660	Conduction-type MHD generator with motion of the hybrid working mat KWARTLER, M.  Barriers to the application of win conversion systems in urban sets.  KWARTLY, H. G.  Area load-frequency control  LA-THAMM, H.  Distribution and movement of electricals and batteries  LAASKO, J. H.  Linear concentration solar collect supported enclosure. Preliminar [SAND-78-7022]  LABAHN, KD.  On the substitution of petroleum in sources - Using the energy economy of the substitution of petroleum in sources - Using the energy economy as an example  LACKMER, K.  Dependence of ideal MHD beta limit density and pressure profiles  LADY, G. M.  Economic structure, aggregate product: A preliminary analysis [DCZ/EIA-0103/8]  LAEDRACH, P.  Laser fusion implications of resonand associated electrostatic fidensity G. E.	terial 25 p0030 A80-12898 ad energy tings 25 p0155 N80-14494 25 p0022 A80-12735  trolyte in fuel 25 p0138 N80-13619 tor in an air ry design study 25 p0141 N80-13644 by other energy omics of West 25 p0074 A80-19000 ts on current 25 p0054 A80-17790 fluction functions intermediate s 25 p0096 N80-10607 mance absorption eld pressure 25 p0057 A80-17869

LALLI, V. R. Photovoltaic power system reliability considerations
[BASA-TM-79291] 25 p0170 N80-15422 LAMBOU, V. R.
Surface water quality parameters for monitoring
oil shale development
200,000,71
25 p0153 N80-25 p0153 N80-14470 LAMORTE, H. F.
Novel concentrator photovoltaic converter system development [SAND-79-7040] 25 p0143 N80-13661 LAMPERT, C. M.
Coatings for enhanced photothermal energy
collection. II - Non-selective and energy control films 25 p0086 A80-20714 Thermal degradation of a black chrome solar selective absorber coating: Short term [LBI-8857] 25 p0161 N80-14549 LANDSMAN, E. E. Maximum power trackers for photovoltaic arrays
[COO-4094-17] 25 p0116 N80-11627
Classification and technical review of dc-ac inverters for use in photovoltaic power systems [COC-4094-25] 25 p0137 N80-13377 LANGUER, J. Nuclear fusion by cylindrical ion implosion 25 p0058 A80-17874 #IER, M.
Computer program for assessing the economic feasibility of solar energy for single family residences and light commercial applications
25 p0156 N80-14501 LANSING, P. L.
A high performance porous flat-plate solar collector
25 p0021 A80-12438 LABSIEG, E.
Solar heating and cooling research projects: A summary [ EPRI-ER-1095-SR ] 25 p0147 N80-13703 LANTZ, L. J. Validation of computer models for predicting radiation levels on tilted surfaces 25 p0020 A80-12429 A system for the control of tritium losses in primary and steam circuits of a fusion power plant 25 p0082 A80-19668 LAPILLONNE, B. MFDEE 2: A model for long term energy demand evaluation [IIASA-RR-78-17] 25 p0109 N80-11554 LAREAU, W. E.
World Energy Data System (WENDS)
[CONF-790461-2] 25 p0112 N80-11587 LARSON, D. C. Use of adjustable flat mirrors with flat-plate collectors [AIAA PAPER 80-0294] 25 p0063 A80-18299 Double-exposure collector system
[TID-28964] 25 p0127 N80LARSON, S. A.
The Bullaren lineament, southwestern Sweden - A 25 p0127 N80-12593 possible site for geothermal heat extraction 25 p0075 A80-19049 Multichannel Thomson scattering system for the tokamak TFR based on two-detector spectrum analyzers 25 p0060 A80-18111 The effects of regional insolation differences
upon advanced solar thermal electric power plant
performance and energy costs
[ASME PAPER 79-WA/SOL-15] 25 p0069 A80-1858 25 p0069 A80-18588 LAU, T. K. Department of Energy fossil energy equipment development programs
[CONF-790405-14] 25 p0112 No 25 p0112 N80-11590 LAUKHIN, IA. N.

Principles of plasma heating and confinement in a compact toroidal configuration

LAURENCE, C. L.

A design method for optimizing collector systems
for small solar center receivers
[ASME PAPER 79-WA/SOL-14] 25 p0068 A80-18580

25 p0055 A80-17822

LAVE, L. Review of scenarios of future U.S. energy use 25 p0009 A80-11832 LAVENDER, R. E. The design of a thin walled toroidal vacuum chamber for a large RFP experiment 25 p0082 A80-19676 ocean thermal energy conversion /OTEC/ - Social and environmental issues 25 p0049 A80-17135 Fifth Ocean Thermal Energy Conversion Conference, volume 2, sections 4-5 [CONF-780236-P2] 25 p0162 N80-14553 LAVI, G. B.

Ocean thermal energy conversion /OTEC/ - Social and environmental issues 25 p0049 A80-17135 LAVERHTRY, I. V.
Induced fields in the motion of a conducting
medium in the field of an air-core magnetic system
25 p0061 A80-18138 LAWHOR. W. T. Sugar crops as a source of fuels. Volume 1: Agricultural research [TID-29400/1] 25 p0093 N80-10395 LAWRENCE, R. A.
Review of the environment effects and benefits of selected solar energy technologies [SERI/TP-53-1148] 25 p0141 N80-13649 LAWRENCE, V. P.

Calculations of inertial confinement fusion gains using a collective model for reheat, bremsstrahlung and fuel depletion for highly efficient electrodynamic laser compressions 25 p0058 A80-17875 LAZARETE, O. Pusion energy for hydrogen production [BNL-24906] 25 25 p0180 N80-15897 LAZARETE, C. W. Two-dimensional heating analysis of fusion blankets for synfuel production 25 p0082 A80-19665 One- and two-dimensional heating analyses of fusion synfuel blankets [BNL-NUREG-25635] 25 p0104 N80-10922 LAZZAROTTO, A. Assessment of geothermal potential of central and southern Tuscany 25 p0075 A80-19203 LE GRIVES, E. Open cycle air turbine solar thermal rower system 25 p0083 A80-19989 Utilization of transition metal phosphorus trisulphides as battery cathodes 25 p0012 A80-11858 The microbial production of methane from household wastes - Fixed-bed anaerobic digestion 25 p0074 A80-18870 LEBOEUF, C. H. Analysis of a LiCl open-cycle absorption air daysis of a rici open-cycle absorption arr conditioner which utilizes a packed bed for regeneration of the absorbent solution driven by solar heated air [C00-4546-1] 25 p0101 N80-10652 LEDENT, P. Progress and development trends in coal gasification and liquefaction technologies -Underground coal gasification 25 p0031 A80-12948 Assessment of Stirling engine potential in total and integrated energy systems [ANL/ES-76] 25 p0140 N80-13636 LEE, B. Experimental test facility for evaluation of solar control strategies [LBL-8308] 25 p0126 N80-12586 Inertial confinement fusion at NRL 25 p0056 A80-17861 LEE, R. L. Simulation of LNG vapor spread and dispersion by finite element methods [UCRL-82441] 25 p0168 N80-1

25 p0168 N80-15282

LEE, YC.	Energy from the West: Inergy resource development
Drift wave stability and transport theory in	systems report. Volume 5: Oil and natural gas
fusion systems	[PB-299181/8] 25 p0152 N80-14467
25 p0056 A80-17846 LEES, D. J.	Energy from the West: Energy resource development systems report. Volume 6: Geothermal
Heating, confinement and fluctuations in the CLEO	[PB-299182/6] 25 p0152 N80-14468
stellarator	LEONARD, T. A.
25 p0055 A80~17826	The RMSP laser fusion programme
LEFFEL, C. S., JR.	25 p0056 A80-17860
Energy program at the Johns Hopkins University	LEPLEY, B.
Applied Physics Laboratory	Copper diffusion and photovoltaic mechanisms at
[PB-310245/7] 25 p0179 N80-15648	Cu-CdS contact
LEPLAR, J.	25 p0033 A80-13204
Preliminary analysis of a total solar heating system	LEPRINCE, P.
[ASME PAPER 79-WA/SOL-40] 25 p0069 A80-18583 LEFLAR, J. A.	Technico economic study of the use of hydrogen and
Preliminary analysis of a total solar heating system	methanol for road transport 25 p0042 A80-15993
[COO-4546-4] 25 p0101 N80-10653	LETIE, V. A.
LEGEE, V. Z.	Photoconverter with bilateral sensitivity
Projected mechanism for thionyl chloride and	25 p0044 A80-16625
sulphuryl chloride cathode reactions	Analysis of the optical characteristics of silicon
25 p0012 A80-11856	photoelectric converters with bilateral
LEGGETT, N. E.	sensitivity
Environmental data for energy technology policy analysis. Volume 1: Summary	25 p0044 A80-16628
[HCP/EV6119-1] 25 p0098 N80-10629	Cooling a radioisotope power source in the Space
LEHMAN, S. J.	Shuttle Orbiter
Novel gas turbine cycles with coal gasification	[ASME PAPER 79-ENAS-44] 25 p0039 A80-15267
[ASME PAPER 79-WA/ENER-6] 25 p0C71 A80-18646	LEVINE, S. R.
LERNAND, H. V.	Thermal barrier coatings for aircraft gas turbines
Textured silicon - A selective absorber for solar	[AIAA PAPER 80-0302] 25 p0064 A80-18303
thermal conversion	LEVY, S.
25 p0034 A80-13980	Commercialization strategy report for energy from
LEHMBERG, R. H. Inertial confinement fusion at NEL	urban wastes
25 p0056 A80-17861	[TID-28852-DRAFT] 25 p0 158 N80-14521
LEHNERT, B.	LEWANDOWSKI, A. Alternate cycles applied to ocean thermal energy
Boundary layer analysis of cold-blanket systems	conversion
25 p0058 A80-17877	[SERI/TF-34-180] 25 p0172 N80-15571
LEIBLEIN, S.	LEWIN, L.
Evaluation of feasibility of prestressed concrete	RAPAD - Real-time Accurate Performance Analysis of
for use in wind turbine blades	Data
[NASA-CR-159725] 25 p0 170 N80-15553	[ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565
LEIBOWITZ, L. P.	LEVIS, C. W.
Advanced solar thermal receiver technology	Efficiency improvements in bicenergy conversion
[AIAA PAPER 80-0292] 25 p0063 A80-18297	systems
[AIAA PAPER 80-0292] 25 p0063 A80-18297 LENGYEL, L. L.	systems 25 p0047 A80-16995
[AIAA PAPER 80-0292] 25 p0063 A80-18297	systems 25 p0047 A80~16995
[AIAA PAPER 80-0292] 25 p0063 A80-18297 LENGTEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611	systems  25 p0047 A80-16995  LEYEB, J. C. Flame propagation through unconfined and confined
[AIAA PAPER 80-0292] 25 p0063 A80-18297 LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611 LENOIR, J. M.	systems 25 p0047 A80~16995
[AIAA PAPER 80-0292] 25 p0063 A80-18297 LENGYEL, L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611 LENGIR, J. H. Experimental enthalpies for a mixture of 80 mole	systems  25 p0047 A80-16995  LEYER, J. C. Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.
[AIAA PAPER 80-0292] 25 p0063 A80-18297 LENGTEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611 LENGIE, J. M. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane	systems  25 p0047 A80-16995  LEYER, J. C. Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W. Phosphoric acid fuel-cell electrocatalysts from
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. H.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935	systems  25 p0047 A80-16995  LEYER, J. C.  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. H.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane  [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.	systems  25 p0047 A80-16995  LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures 25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites 25 p0012 A80-11861
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGTEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations  25 p0080 A80-19611  LENGIR, J. M.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane  [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative	Systems  25 p0047 A80-16995  LEYEB, J. C.  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBEBG, J. W.
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. H. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T. Solar generation of industrial steam. Innovative research program subtask	systems  25 p0047 A80-16995  LEYER, J. C.  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures 25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. R.  An overview of Controlled Thermonuclear Research
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. M.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M.	systems  LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  25 p0012 A80-11861  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. H. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T. Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. H. Combustion of anthracite culm in a fluidized bed	systems  25 p0047 A80-16995  LEYER, J. C.  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures 25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. R.  An overview of Controlled Thermonuclear Research
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. H.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEOH, A. H.  Combustion of anthracite culm in a fluidized bed boiler	Systems  LEYER, J. C.  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  25 p0012 A80-11861  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0022 A80-12628  LIH, H. Y.
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. H.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane  [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask  [COC-4546-9] 25 p0101 N80-10656  LEON, A. H.  Combustion of anthracite culm in a fluidized bed boiler  25 p0014 A80-11959	Systems  LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  25 p0012 A80-11861  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0022 A80-12628  LIB, H. Y.  Trace elements from coal combustion: Atmospheric
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. H.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENGIR, T.  Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON. A. H.  Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. R., JR.	Systems  LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  LIH, H. Y.  Trace elements from coal combustion: Atmospheric emissions
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. H.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane  [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask  [COC-4546-9] 25 p0101 N80-10656  LEON, A. H.  Combustion of anthracite culm in a fluidized bed boiler  25 p0014 A80-11959	Systems  LEYER, J. C.  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0022 A80-12628  LIM, H. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05]  25 p0106 N80-11180
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. M.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M.  Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. B., JR.  Puel production characteristics of fusion hybrid reactors	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  25 p0012 A80-11861  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0022 A80-12628  LIM, M. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05]  25 p0106 N80-11180  LIND, G.
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. H. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T. Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. H. Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. R., JR. Fuel production characteristics of fusion hybrid reactors 25 p0059 A80-17888	Systems  LEYER, J. C.  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0022 A80-12628  LIH, H. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05]  25 p0106 N80-11180  LIND, G.  The Bullaren lineament, southwestern Sweden - A
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. M.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M.  Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. B., JR.  Puel production characteristics of fusion hybrid reactors	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures 25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628  LIM, M. Y.  Trace elements from coal combustion: Atmospheric emissions [ICTIS/TR-05] 25 p0106 N80-11180  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. H. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T. Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. H. Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. B., JR. Fuel production characteristics of fusion hybrid reactors 25 p0059 A80-17888  LEONARD, D. A. Remote sensing of LNG spill vapor dispersion using Raman LIDAR	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0022 A80-12628  LIH, H. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05]  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction  25 p0075 A80-19049  LIED, H. A.
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations  25 p0080 A80-19611  LENGIR, J. M.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane  [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask  [COC-4546-9] 25 p0101 N80-10656  LEON, A. M.  Combustion of anthracite culm in a fluidized bed boiler  25 p0014 A80-11959  LBONARD, B. B., JR.  Puel production characteristics of fusion hybrid reactors  25 p0059 A80-17888  LEONARD, D. A.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR  [UCRL-13984] 25 p0103 N80-10689	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures 25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628  LIM, M. Y.  Trace elements from coal combustion: Atmospheric emissions [ICTIS/TR-05] 25 p0106 N80-11180  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction 25 p0075 A80-19049  LIND, M. A.  Summary report of the Solar Reflective Materials
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. M.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M.  Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. B., JR. Fuel production characteristics of fusion hybrid reactors 25 p0059 A80-17888  LEONARD, D. A.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  LEONARD, J. A.	LEYER, J. C.  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, H. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  25 p0012 A80-11861  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0022 A80-12628  LIH, H. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05]  25 p0106 N80-11180  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction  25 p0075 A80-19049  LIND, H. A.  Summary report of the Solar Reflective Materials Technology Workshop
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. H. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T. Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. H. Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. B., JR. Fuel production characteristics of fusion hybrid reactors 25 p0059 A80-17888  LEONARD, D. A. Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRI-13984] 25 p0103 N80-10689  LEONARD, J. A. Safety and environmental implications DOE/Sandia	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0022 A80-12628  LIH, H. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05]  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction  25 p0075 A80-19049  LIND, H. A.  Summary report of the Solar Reflective Materials Technology Workshop  [PNI-2763]  25 p0097 N80-10613
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. M. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T. Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M. Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. R., JR. Puel production characteristics of fusion hybrid reactors 25 p0059 A80-17888  LEONARD, D. A. Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  LEOHARD, J. A. Safety and environmental implications DOE/Sandia Hidtemperature Solar Systems Test Facility	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures 25 p0008 A80-11816  LEYERLE, R. W. Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W. An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628  LIM, M. Y. Trace elements from coal combustion: Atmospheric emissions [ICTIS/TR-05] 25 p0106 N80-11180  LIND, G. The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction 25 p0075 A80-19049  LIND, H. A. Summary report of the Solar Reflective Materials Technology Workshop [PNI-2763] LINDEMBNIS, A. B.
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. M.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M.  Combustion of anthracite culm in a fluidized bed boiler  25 p0014 A80-11959  LEONARD, B. B., JR. Fuel production characteristics of fusion hybrid reactors  25 p0059 A80-17888  LEONARD, D. A.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRI-13984] 25 p0103 N80-10689  LEONARD, J. A.  Safety and environmental implications DOE/Sandia Midtemperature Solar Systems Test Facility [SAND-78-2292C] 25 p0057 N80-10609	LEYER, J. C.  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, H. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  25 p0012 A80-11861  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0022 A80-12628  LIH, H. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05]  25 p0106 N80-11180  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction  25 p0075 A80-19049  LIND, H. A.  Summary report of the Solar Reflective Materials Technology Workshop  [PNI-2763]  LINDEMANIS, A. B.  Hineral changes during oil shale retorting
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. M. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T. Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M. Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. R., JR. Fuel production characteristics of fusion hybrid reactors 25 p0059 A80-17888  LEONARD, D. A. Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRI-13984] 25 p0103 N80-10689  LEONARD, J. A. Safety and environmental implications DOE/Sandia Midtemperature Solar Systems Test Facility [SAND-78-2292C] 25 p0057 N80-10609  LEONARD, R. L.	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0012 A80-11861  LIH, H. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05] 25 p0106 N80-11180  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction  25 p0075 A80-19049  LIND, H. A.  Summary report of the Solar Reflective Materials Technology Workshop  [PNI-2763] 25 p0097 N80-10613  LINDEMANIS, A. E.  Mineral changes during oil shale retorting
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENGIR, J. M.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M.  Combustion of anthracite culm in a fluidized bed boiler  25 p0014 A80-11959  LEONARD, B. B., JR. Fuel production characteristics of fusion hybrid reactors  25 p0059 A80-17888  LEONARD, D. A.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRI-13984] 25 p0103 N80-10689  LEONARD, J. A.  Safety and environmental implications DOE/Sandia Midtemperature Solar Systems Test Facility [SAND-78-2292C] 25 p0057 N80-10609	LEYER, J. C.  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  25 p0012 A80-11861  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0022 A80-12628  LIH, H. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05]  25 p0106 N80-11180  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction  25 p0075 A80-19049  LIND, H. A.  Summary report of the Solar Reflective Materials Technology Workshop  [PNI-2763]  LINDEMANIS, A. B.  Hineral changes during oil shale retorting
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENOIR, J. M. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T. Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M. Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. R., JR. Fuel production characteristics of fusion hybrid reactors 25 p0059 A80-17888  LEONARD, D. A. Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRI-13984] 25 p0103 N80-10689  LEONARD, J. A. Safety and environmental implications DOE/Sandia Midtemperature Solar Systems Test Facility [SAND-78-2292C]. 25 p0057 N80-10609  LEONARD, R. L. Energy from the West: Energy resource development systems report. Volume 1: Introduction and general social controls	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0012 A80-12628  LIH, H. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05] 25 p0106 N80-11180  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction  25 p0075 A80-19049  LIND, H. A.  Summary report of the Solar Reflective Materials Technology Workshop  [PNI-2763] 25 p0097 N80-10613  LINDEMANIS, A. B.  Mineral changes during oil shale retorting  25 p0085 A80-20455  LINDSTROM, O.  Utility fuel cells for Sweden
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENOIR, J. M. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T. Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M. Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. B., JR. Puel production characteristics of fusion hybrid reactors 25 p0059 A80-17888  LEONARD, D. A. Remote sensing of LNG spill vapor dispersion using Raman LIDAB [UCRL-13984] 25 p0103 N80-10689  LEONARD, J. A. Safety and environmental implications DOE/Sandia Midtemperature Solar Systems Test Facility [SAND-78-2292C] 25 p0057 N80-10609  LEONARD, R. L. Energy from the West: Energy resource development systems report. Volume 1: Introduction and general social controls [PB-299177/6] 25 p0152 N80-14463	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0012 A80-11861  LIH, M. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05]  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction 25 p0075 A80-19049  LIND, H. A.  Summary report of the Solar Reflective Materials Technology Workshop  [PNL-2763]  LINDEMANIS, A. B.  Hineral changes during oil shale retorting 25 p0085 A80-20455  LINDSTRCM, O.  Utility fuel cells for Sweden
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENOIR, J. M. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M.  Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. B., JR. Fuel production characteristics of fusion hybrid reactors 25 p0059 A80-17888  LEONARD, D. A. Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  LEONARD, J. A. Safety and environmental implications DOE/Sandia Midtemperature Solar Systems Test Facility [SAND-78-2292C]. 25 p0057 N80-10609  LEONARD, R. L. Energy from the West: Energy resource development systems report. Volume 1: Introduction and general social controls [PB-299177/6] Energy from the West: Energy resource development	LETER, J. C.  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0012 A80-11861  LIH, M. Y.  Trace elements from coal combustion: Atmospheric emissions [ICTIS/TR-05] 25 p0106 N80-11180  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction 25 p0075 A80-19049  LIND, H. A.  Summary report of the Solar Reflective Materials Technology Workshop [PNI-2763] 25 p0097 N80-10613  LINDEMANIS, A. B.  Mineral changes during oil shale retorting 25 p0085 A80-20455  LINDSTRCM, O.  Utility fuel cells for Sweden  LIOR, M.  Instrumentation principles for performance
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations  25 p0080 A80-19611  LENOIR, J. H.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane  [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask  [COC-4546-9] 25 p0101 N80-10656  LEON, A. H.  Combustion of anthracite culm in a fluidized bed boiler  25 p0014 A80-11959  LEONARD, B. R., JR.  Fuel production characteristics of fusion hybrid reactors  25 p0059 A80-17888  LEONARD, D. A.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR  [UCRI-13984] 25 p0103 N80-10689  LEONARD, J. A.  Safety and environmental implications DOE/Sandia Midtemperature Solar Systems Test Facility  [SAND-78-2292C] 25 p0057 N80-10609  LEONARD, R. L.  Energy from the West: Energy resource development systems report. Volume 1: Introduction and general social controls  [PB-299177/6] 25 p0152 N80-14463  Energy from the West: Energy resource development systems report. Volume 2: Coal	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0012 A80-11861  LIH, H. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05] 25 p0106 N80-11180  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction  25 p0075 A80-19049  LIND, H. A.  Summary report of the Solar Reflective Materials Technology Workshop  [PNI-2763] 25 p0097 N80-10613  LINDEMANIS, A. B.  Mineral changes during oil shale retorting  25 p0085 A80-20455  LINDSTROM, O.  Utility fuel cells for Sweden  LIOR, B.  Instrumentation principles for performance measurement of solar heating systems
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations 25 p0080 A80-19611  LENOIR, J. M. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T. Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEOH, A. M. Combustion of anthracite culm in a fluidized bed boiler 25 p0014 A80-11959  LEONARD, B. R., JR. Puel production characteristics of fusion hybrid reactors 25 p0059 A80-17888  LEONARD, D. A. Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  LEONARD, J. A. Safety and environmental implications DOE/Sandia Midtemperature Solar Systems Test Facility [SAND-78-2292C] 25 p0057 N80-10609  LEONARD, R. L. Energy from the West: Energy resource development systems report. Volume 1: Introduction and general social controls [PB-299177/6] 25 p0152 N80-14463  Energy from the West: Energy resource development systems report. Volume 2: Coal [PB-299178/4] 25 p0152 N80-14464	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0012 A80-12628  LIM, M. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05]  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction 25 p0075 A80-19049  LIND, H. A.  Summary report of the Solar Reflective Materials Technology Workshop  [PNI-2763]  LINDEMANIS, A. B.  Mineral changes during oil shale retorting 25 p0085 A80-20455  LINDSTRCM, O.  Utility fuel cells for Sweden  Instrumentation principles for performance measurement of solar heating systems  25 p0020 A80-12432
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations  25 p0080 A80-19611  LENOIR, J. H.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane  [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T.  Solar generation of industrial steam. Innovative research program subtask  [COC-4546-9] 25 p0101 N80-10656  LEON, A. H.  Combustion of anthracite culm in a fluidized bed boiler  25 p0014 A80-11959  LEONARD, B. R., JR.  Fuel production characteristics of fusion hybrid reactors  25 p0059 A80-17888  LEONARD, D. A.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR  [UCRI-13984] 25 p0103 N80-10689  LEONARD, J. A.  Safety and environmental implications DOE/Sandia Midtemperature Solar Systems Test Facility  [SAND-78-2292C] 25 p0057 N80-10609  LEONARD, R. L.  Energy from the West: Energy resource development systems report. Volume 1: Introduction and general social controls  [PB-299177/6] 25 p0152 N80-14463  Energy from the West: Energy resource development systems report. Volume 2: Coal	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures 25 p0008 A80-11816  LEYERLE, R. W. Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W. An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory 25 p0022 A80-12628  LIM, M. Y. Trace elements from coal combustion: Atmospheric emissions [ICTIS/TR-05] 25 p0106 N80-11180  LIND, G. The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction 25 p0075 A80-19049  LIND, M. A. Summary report of the Solar Reflective Materials Technology Workshop [PNL-2763] 25 p0097 N80-10613  LINDEMANIS, A. B. Mineral changes during oil shale retorting 25 p0085 A80-20455  LINDSTROM, O. Utility fuel cells for Sweden  LIOR, M. Instrumentation principles for performance measurement of solar heating systems 25 p0020 A80-12432 Optimal insulation of solar heating system pipes
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations  25 p0080 A80-19611  LENOIR, J. M. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T. Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M. Combustion of anthracite culm in a fluidized bed boiler  25 p0014 A80-11959  LEONARD, B. R., JR. Puel production characteristics of fusion hybrid reactors  25 p0059 A80-17888  LEONARD, D. A. Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  LEONARD, J. A. Safety and environmental implications DOE/Sandia Hidtemperature Solar Systems Test Facility [SAND-78-2292C] 25 p0057 N80-10609  LEONARD, R. L. Energy from the West: Energy resource development systems report. Volume 1: Introduction and general social controls [PB-299177/6] 25 p0152 N80-14463  Energy from the West: Energy resource development systems report. Volume 2: Coal [PB-299178/4] 25 p0152 N80-14464  Energy from the West: Energy resource development systems report. Volume 3: Oil shale [PB-299179/2] 25 p0152 N80-14465	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0012 A80-12628  LIM, M. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05]  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction 25 p0075 A80-19049  LIND, H. A.  Summary report of the Solar Reflective Materials Technology Workshop  [PNI-2763]  LINDEMANIS, A. B.  Mineral changes during oil shale retorting 25 p0085 A80-20455  LINDSTRCM, O.  Utility fuel cells for Sweden  Instrumentation principles for performance measurement of solar heating systems  25 p0020 A80-12432
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L.  Refueling by means of pellets - Ablation rate and injection velocity considerations  25 p0080 A80-19611  LENOIR, J. H.  Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane  [EPRI-ER-1034] 25 p0118 N80-11935  LENEZ, T.  Solar generation of industrial steam. Innovative research program subtask  [COC-4546-9] 25 p0101 N80-10656  LEON, A. H.  Combustion of anthracite culm in a fluidized bed boiler  25 p0014 A80-11959  LEONARD, B. B., JR.  Fuel production characteristics of fusion hybrid reactors  25 p0059 A80-17888  LEONARD, D. A.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  LEONARD, J. A.  Safety and environmental implications DOE/Sandia Hidtemperature Solar Systems Test Facility [SAND-78-2292C] 25 p0057 N80-10609  LEONARD, R. L.  Energy from the West: Energy resource development systems report. Volume 1: Introduction and general social controls [PB-299177/6] 25 p0152 N80-14463  Energy from the West: Energy resource development systems report. Volume 2: Coal [PB-299178/4] 25 p0152 N80-14464  Energy from the West: Energy resource development systems report. Volume 3: 011 shale [PB-299179/2]  Energy from the West: Energy resource development systems report. Volume 3: 011 shale [PB-299179/2]  Energy from the West: Energy resource development	LEYER, J. C.  Flame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0012 A80-12628  LIH, M. Y.  Trace elements from coal combustion: Atmospheric emissions [ICTIS/TR-05]  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction  25 p0075 A80-19049  LIND, M. A.  Summary report of the Solar Reflective Materials Technology Workshop [PNI-2763]  LINDEMANIS, A. B.  Mineral changes during oil shale retorting  25 p0097 N80-10613  LINDSTRCM, O.  Utility fuel cells for Sweden  LIOR, M.  Instrumentation principles for performance measurement of solar heating systems  25 p0021 A80-12432  Optimal insulation of solar heating system pipes and tanks  25 p0021 A80-12434  Optimal insulation of pipes and tanks for solar
[AIAA PAPER 80-0292] 25 p0063 A80-18297  LENGYEL, L. L. Refueling by means of pellets - Ablation rate and injection velocity considerations  25 p0080 A80-19611  LENOIR, J. M. Experimental enthalpies for a mixture of 80 mole percent isobutane in isopentane [EPRI-ER-1034] 25 p0118 N80-11935  LENZ, T. Solar generation of industrial steam. Innovative research program subtask [COC-4546-9] 25 p0101 N80-10656  LEON, A. M. Combustion of anthracite culm in a fluidized bed boiler  25 p0014 A80-11959  LEONARD, B. R., JR. Puel production characteristics of fusion hybrid reactors  25 p0059 A80-17888  LEONARD, D. A. Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  LEONARD, J. A. Safety and environmental implications DOE/Sandia Hidtemperature Solar Systems Test Facility [SAND-78-2292C] 25 p0057 N80-10609  LEONARD, R. L. Energy from the West: Energy resource development systems report. Volume 1: Introduction and general social controls [PB-299177/6] 25 p0152 N80-14463  Energy from the West: Energy resource development systems report. Volume 2: Coal [PB-299178/4] 25 p0152 N80-14464  Energy from the West: Energy resource development systems report. Volume 3: Oil shale [PB-299179/2] 25 p0152 N80-14465	LEYER, J. C.  Plame propagation through unconfined and confined hemispherical stratified gaseous mixtures  25 p0008 A80-11816  LEYERLE, R. W.  Phosphoric acid fuel-cell electrocatalysts from pyropolymer ceramic composites  LILBERG, J. W.  An overview of Controlled Thermonuclear Research Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory  25 p0012 A80-12628  LIH, M. Y.  Trace elements from coal combustion: Atmospheric emissions  [ICTIS/TR-05]  LIND, G.  The Bullaren lineament, southwestern Sweden - A possible site for geothermal heat extraction  25 p0075 A80-19049  LIND, H. A.  Summary report of the Solar Reflective Materials Technology Workshop  [PNL-2763]  LINDEMANIS, A. B.  Mineral changes during oil shale retorting  25 p0085 A80-20455  LINDSTRCM, C.  Utility fuel cells for Sweden  15 p0011 A80-11852  LIOR, B.  Instrumentation principles for performance measurement of solar heating systems  25 p0020 A80-12434  Optimal insulation of solar heating system pipes and tanks  25 p0021 A80-12434

LIPIBSKY, B. S.
Sugar crops as a scurce of fuels. Volume 1: Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine Agricultural research 25 p0091 N80-10068 [TID-29400/1] 25 p0C93 N80-10395 LIPBAB, B. H. Heating, confinement and fluctuations in the CLEO stellarator A review of the U.S. wind energy programme 25 p0042 A80-16083 25 p0055 A80-17826 LONDAHL, D. S.
Evaluation of feasibility of prestressed concrete
for use in wind turbine blades
25 no.170 N80-15 LISITANO, G. Accumulation of impurities and stability behaviour in the high-density regime of Pulsator 25 p0054 A80-17759 [ NASA-CR-159725 ] 25 p0170 N80-15553 LISSAMAN, P. B. S. LONG, G.
Development of renewable energy sources in the The Coriolis program 25 p0044 A80-16653 United Kingdom LISTER, E.
Low NO(x) heavy fuel combustor program 25 p0017 A80-11980 LONG, J.

Effects of conditioning agents on emissions from coal-fired boilers: Test report no. 2

25 po165 N80-1 [NASA-TM-79313] 25 p0138 N80-13624 [NASA-TH-19316]
LITCHFIELD, J. W.
Methodology for identifying materials constraints
to implementation of solar energy technologies
25 p0058 N80-10625 25 p0165 N80-14591 LONGINOV, A. V.
Past-magnetosonic-wave excitation in large-tokamak LITTLE, J.

Development of the Rocky Mountain Energy and
Environmental Technology Center: A preliminary plasmas 25 c0056 A80-17855 LOO, R.
Electron radiation damage of (AlGa) As-GaAs solar analysis [ORAU-158] LITTLE, S. A. 25 p0179 N80-15670 [NASA-CR-162425] 25 p0110 N80-11564 Characterization of three types of silicon solar cells for SEPS deep space missions. Volume 1: LOPEZ, M. I. S.
A study of the thermal effect that radiant energy Current-voltage characteristics of OCLI BSF/BSR produces on a mass of water 10 ohm-cm, and BSR 2 ohm-cm cells as a function of temperature and intensity 25 p0040 A80-15653 LORENSEN. L. R. On-line tests of organic additives for the inhibition of the precipitation of silica from [NASA-TM-78253] 25 p0171 N80-15562 Non-linear theory of collective processes in hypersaline geothermal brine. 2: Tests of nn-linear theory or collective processors — laser-pellet interaction and soliton generation 25 p0057 A80-17870 nitrogen-containing compounds, silanes, and additional ethoxylated compounds LIUBIMOV, G. A. [UCID-18195] 25 p0110 N80-11567 LORSCH, H. G.

Heat pump centered integrated community energy
systems; System development
[ANL/ICES-TM-26] 25 p0173 N80 Heat transfer in the channel of a high-power MHD 25 p0035 A80-14516 LIVENGOOD, C. D.
Status of development, energy and economics aspects of alternative technologies
[CONF-790371-1] 25 p0145 25 p0173 N80-15589 LAND/ICED IN TO THE PROPERTY OF THE PROPERTY O 25 p0145 N80-13689 LO, C.-T. LOTKER, N.

EPRI new energy resources department strategy paper
[EPRI-ER-979] 25 p0097 N80-10610 An indirect ammonia-air fuel system 25 p0013 A80-11868 LOBE. N. LOWELL, C. E. Commercialization strategy report for coal The erosion/corrosion of small superalloy turbine rotors operating in the effluent of a PPB coal liquefaction [TID-28846] 25 p0135 N80-13285 combustor LOCKE, P. R.
On-line tests of organic additives for the 25 p0001 A80-10043 LOYD, E. A. inhibition of the precipitation of silica from Commercialization strategy report for coal hypersaline geothermal brine. 2: Tests of nitrogen-containing compounds, silanes, and liquefaction [TID-28846] 25 p0135 N80-13285 additional ethoxylated compounds LOZOVSKII, V. N.
High-voltage multijunction solar cell [UCID-18195] 25 p0110 N80-11567 RP, G. O. G. Analysis of a LiCl open-cycle absorption air conditioner which utilizes a packed bed for LOEF, 25 p0035 A80-14593 LUBTZKE, K. Experiences with the practical use of an Andersen cascade impactor in the exhaust gas of warious regeneration of the absorbent solution driven by solar heated air industrial sites [COO-4546-1] 25 p0101 N80-10652 25 p0074 A80-18861 Performance of residential solar heating and LURASH, V. E.

Concept of tokamak-type reactor with cooling system with flat-plate and evacuated tubular collectors: CSU solar house 1 [COO-2577-16] 25 p0163 N80-14568 Performance of residential solar heating and high-temperature blanket 25 p0059 A80-17885 LUKENS. L. I. cooling system with flat-plate and evacuated tubular collectors: CSU Solar House 1 [COO-2577-17] 25 p0176 N80-15616 Effect of operating temperatures on the cost of energy from solar thermal electric power plants [SAND-79-0801] 25 p0124 N80-12563 LOPEBSKI, J. J.

The A-T/1-y/B-I/y/C-IIID-VI/2x/E-VI2/1-x/
pentenary alloy system and its application to
photovoltaic solar energy conversion LOKENS, L. L.

Graphical representation of TMY solar radiation
availability for one- and two-axis solar collectors [SAND-79-0418] 25 p0046 A80-16786 25 p0100 N80-10640 LUKHIAHOV, V. N.

Investigation of plasma heating by powerful LOGAN, B. G. Tandem mirror reactors 25 p0059 A80-17887 relativistic electron beams LOKAI. N. V. 25 p0056 A80-17857 Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine Lawrence Livermore Laboratory geothermal energy 25 p0003 A80-10613 program: A status report on the development of the Total-Flow concept Study of heat-pipe heat exchanger in the small gas turbine engine system [UCRL-50046-77] 25 p0159 N80-14529

25 p0091 N80-10022

25 p0027 A80-12784

LUNDEGARD, P.		MALECHA, R. P.	
Devonian raleocurrents of the App [METC/CR-79/22]	lachian basin 25 p0149 N80-13735	Review of industrial participate lithium/iron sulfide battery	development program
LUSTENADER, E. L. Regenerative flywheel energy stor	age system 25 p0112 N80-11594	[CONF-780852-1]  MALECKI, B. J.  Prompt from Abo Hooks Prompt	25 p0164 N80-1457
[UCRL-13982] LYNCE, J. J. Servey of MAD plant applications	25 po 112 noo-11594	Energy from the West: Energy a systems report. Volume 1: 1	
Survey of MHD plant applications LYMM, D.	25 p0015 A80-11972	general social controls [PB-299177/6] Procest from the Heat: Procest	25 p0152 N80-1446
Applications of fuel cells in tra [LA-UR-79-628]	nsportation 25 p0159 N80-14526	Energy from the West: Energy is systems report. Volume 2: ( [PB-299178/4]	
LYON, R. J. P. Geological and geothermal data us	-	Energy from the West: Energy is systems report. Volume 3: (	resource development
for application explorer missic capacity mapping mission		[PB-299179/2] Energy from the West: Energy	25 p0152 N80-1446
[E80-10033] LYSIAHSKII, P. B.	25 p017C N80-15528	systems report. Volume 4: [PB-299180/0]	Jranium 25 p0152 N80-1446
Transverse particle losses in axi open traps		Energy from the West: Energy of systems report. Volume 5: (	oil and natural gas
	25 p0055 A80-17840	[PB-299181/8] Energy from the West: Energy	
M		systems report. Volume 6: ( [PB-299182/6]	Seothermal 25 p0152 N80-1446
MABEY, D. R.		MALESANI, G.	-
Bvaluation of Baltazor known geot area, Nevada		Studies on plasma formation, re heating in a reversed-field p	pinch
MACCARLEY, C. A.	25 p0076 A80-19206	HALIK, J.	25 p0054 A80-1781
Hydrogen fuel applications for un	ban transit 25 p0037 A80-14703	Non-sintered plastic-bonded nice electrodes with open structure	
MACHENS, U. Measurements on a 15 kW wind ener	-	electrochemical performance	25 p0009 A80-1183
system	25 p0039 A80-15329	Plastic bonded electrodes for a accumulators. I - Cadmium ele	nickel-cadmium
MADDALA, G. S.	-		25 p0043 A80-1614
Analysis of financial programs for conservation: Market simulation model		Performance of an inexpensive of collector/storage system in o	
[HCP/M8662-1] MAHABALA, HR.	25 p0114 N80-11606		25 p0003 A80-1084
Techno-economic feasibility analy cells with and without concentr		Transient rise of plate tempera collectors	25 p0023 A80-1274
lighting	25 p0026 A80-12773	MALIUTIN, A. I. Principles of plasma heating a	<del>-</del>
Wave propagation in a dc supercor	ducting cable.	compact toroidal configuration	on 25 g0055 A80-1782
Part 1: Analysis [LA-UR-79-226]	25 p0151 N80-14346	MALLARVA, KH. M. Calculation of the optical char	
Theoretical consideration of curv	ve fill factor in	high-power two-mirror sclar	furnaces 25 p0044 A80-1662
solar cells	25 p0026 A80-12768	Brightness distribution over the	
Preliminary assessment of industr	cial needs for an	Algorithm for calculating the	
advanced ocean technology [NASA-CR-162435]	25 p0118 N80-11747	of the heliostats of a solar	25 p0051 A80-1724
Experimental and theoretical eval		Structure of an averaged statis rays reflected from a helios	tat
concentrating solar energy coll [SAND-79-1053C]	25 p0144 N80-13671	MANICKAM, J.	25 p0051 A80-1724
Baitea, K. Bogus-type treatment of Cu2S-CdS deposition from solution	solar cells using	MHD stability limits on high-be	eta tokamaks 25 p0054 A80-1779
HAJAHAD, P. S.	25 p0028 A80-12788	Forecasting automobile fleet for	nel efficiency 25 p0002 180-1032
Study of corrosion and its contro solar collectors	ol in aluminum	MANSHARD, W. Renewable energy prospects: Pro	-
[COO-2934-7] HAJTELES, H.	25 p0129 N80-12609	Conference on Non-Possil Fue Fuel Energy Strategies, Hono	l and Non-Nuclear
Experimental test facility for excontrol strategies		January 9-12, 1979	25 p0047 A80-1712
[LBL-8308] HAJUMDAR, S.	25 p0126 N80-12586	Experimental results of the so.	lar heating system
<pre>Baterials testing for central rec solar-thermal rower systems [DOT/TIC-10103]</pre>	25 p0096 N80-10606	on the LSU field house [AIAA PAPER 80-0297]	25 p0063 A80-1830
Materials testing for central reconsolar-thermal power systems		Evaluation of a solar heating : the LSU Field House [ASME PAPER 79-WA/SOL-31]	
[TID-29443]	25 p0146 N80-13695	HARATHE, B. E.  Eeview of the work done at C.E.	25 p0068 A80-1857
Activity tests of various catalys		development of single crysta	l silicon solar
hydrocracking of coal by means differential thermal analysis		cells for use with concentration	ted light 25 p0027 A80-1277
HALATHI, G.	25 p0019 A80-12244	MARATHE, C. R. Solar concentrator with polyes	ter film for
A theoretical method for estimati due to mismatch in solar cell i	I-V characteristics	reflecting surface and pendu tracking movement	
	25 p0025 A80-12763	-	25 p0027 A80-1278

PERSONAL AUTHOR INDEX MCALEES, D. G.

MARCINIAK, T. J.
Assessment of Stirling engine potential in total and integrated energy systems
[ANL/ES-76] 25 p0140 N80-13636 HARCOBCIBI, B.
Analysis of reservoir pressure and decline curves
in Serrazzano zone, Larderello geothernal field
25 p0075 A80-19 25 p0075 A80-19204 Microbial hydrogen production from replenishable resources 25 p0032 A80-13197 MARIANOWSKI, L. G. The performance of molten-carbonate fuel cells 25 p0011 A80-11851 Testing and performance of the 30 kA ohmic heating system for ASDEX 25 p0078 A80-19585 Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80~17822 MARKIN, T. L. Current collectors for sodium-sulphur batteries 25 man 13 A80-25 p0013 A80-11867 HARROVSKII, W. V.
Digital computer modeling of steady-state
conditions of the magnetoplasmadynamic generator 25 p0083 A80-20058 MARKOWSKY, J. J. 170 MW pressurized fluidized bed combustion electric plant 25 p0014 A80-11962 MARLAND, G. Prospects for the near-term commercialization of shale oil in the United States 25 p0078 A80-19474 Shale oil: US and world resources and prospects for near-term commercialization in the United States [ ORAU/IEA-79-8 (R) ] 25 p0122 N80-12544 MARLATT, W. B. Assessment of the applicability of the national fire weather data library to wind energy analyses [PNL-2538] 25 p0165 M80-14655 HAROBI, V.
Impact of technology and maintainability on
economic aspects of tokamak power plants
25 p0059 A80-17884 MARSH, W. D. Requirements assessment of wind power plants in electric utility systems. Volume 3: Appendi [EPRI-ER-978-VOL-3] 25 p0139 N80me 3: Appendixes 25 p0139 N80-13628 MARTEW, I. N.
Ion-stimulated sorption of nitrogen on a on-stimulated sorption of network continuously deposited titanium film 25 p0051 A80-17252 MARTIN, P. Evidence of nonlinear processes from X-ray spectra of CO2 laser-irradiated targets 25 p0046 A80-16776 MARTIN, J.

MeV cluster ion beam diagnostics by means of calorimetry and time-of-flight spectroscopy
25 p0080 A80-19612 MARTIN, J. G.
Economics of fusion driven symbiotic energy systems
'COMP-790602-501 25 p0128 N80-12602 MARTIN, M. Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N80-12589 MARTIN, T. H. Pulsed power for fusion [SAND-79-0933C] MARTINO, F. J. 25 p0181 N80-15908 Development of Li-Al/FeS cells with LiCl-rich electrolyte [CONF-7810135-2] 25 p0176 N80-15614 MARTIUSHOV, IU. S. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822 MARTZ, J. E. A photovoltaic power system in the remote African village of Tangaye, Upper Volta
[NASA-TM-79318] 25 p0123 N80-12552

HASHAYBKHI, G. H. Supply and demand in input-output analysis for energy modeling 25 p0088 A80-20890 Solar availability for winter space heating - An analysis of SOLMET data, 1953 to 1975 25 p0006 A80-11370 MASON, B. Direct labor requirements for select solar energy technologies: A review and synthesis [SERI/RR-53-045] 25 p0126 N80-12578 MASON, B. B.
Technical assessment of thermal DeNOx process [PB-297947/4] 25 p0117 N80-11656 MASSIMILLA, L. The calculation of carbon load and axial profiles of oxygen concentration in the bed of a fluidized combustor 25 p0077 A80-19421 MATHIBU, J. C. Thermodynamic and structural properties of LaNi/5-y/Aly compounds and their related hydrides 25 p0033 A80-13200 MATHUR, P. C. Performance of silicon solar cells in front of a water absorber 25 p0019 A80-12125 MATHUR, R. S. A theoretical method for estimation of power loss due to mismatch in solar cell I-V characteristics 25 p0025 A80-12763 HATHUR, S. S.
A new approach to low cost large area selective surfaces for photothermal conversion

25 n0003 A80-25 p0003 A80-10845 Using a fin with a parabolic concentrator 25 p0004 A80-10847 Optical and electrical investigations on annealed indium oxide selective coatings produced by spray pyrolysis 25 p0023 A80-12747 HATOBA, H. Inertial confinement fusion research at Osaka 25 p0057 A80-17868 MATSUURA, K. Constant current and constant voltage excitation of large coils by flywheel-generator-converter 25 p0080 A80-19624 MATTHEWS, W. H. Renewable energy prospects; Froceedings of the Conference on Non-Possil Fuel and Non-Nuclear Fuel Energy Strategies, Honolulu, Hawaii, January 9-12, 1979 25 p0047 A80-17126 Exploring alternative energy strategies 25 p0047 A80-17127 MATTSSON, C. An optimization model for overall urban energy planning 25 p0038 A80-14844 MATTERY, I. V.
Study of heat-pipe heat exchanger in the small gas
turbine engine system 25 p0091 N80-10022 MAXWELL, B. Chemical structures and reactivities of coal as an organic natural product [CONF-790415-25] 25 p0105 N80-11168 MAXWELL, J. C. Geothermal exploration methods and results: Inland states [LA-UR-79-665] 25 p0108 N80-11543 MAY, M. E. Microbial deterioration of hydrocarbon fuels from oil shale, coal, and petroleum. 1: Exploratory experiments [AD-A073761] 25 p0150 N80-14259 HAYRE, F. J.

The KMSF laser fusion programme 25 p0056 A80-17860 HAYNARD, J. B.
Devonian paleocurrents of the Applachian basin
[METC/CB-79/22] 25 p0149 N80 25 p0149 N80-13735 MCALBES, D. G.

The Elmo Bumpy Torus /EBT/ reactor

25 p0058 A80-17883

```
BCKENNA, K. F.
Recent developments in linear theta-pinch and
MCALVERY, R. F., III
Impact of flywheel-transmissions on automobile
                                                                                            laser-heated solenoid research
       performance: A logical basis for evaluation
                                                  25 p0137 N80-13480
       [UCRL-52758]
MCBRPEN, J.
    Hydrogen-halogen energy storage system
                                                   25 p0139 N80-13632
       [BNÍ-50924]
    Applications of fuel cells in transportation
       [LA-UR-79-628]
                                                   25 p0159 N80-14526
MCBRIDE, J. B.
Drift wave stability and transport theory in
       fusion systems
                                                  25 p0056 A80-17846
MCBRIDE, M.
Fuel utilization in residences
[EPRI-BA-894] 25 p0175 N80-
MCCLAIME, A. W.
High interaction subsonic MHD channel operation
                                                   25 p0175 N80-15604
                                                   25 p0062 A80-18242
       [AIAA PAPER 80-0022]
MCCLELIAND, J. F.
Photothermal conversion surface measurements using
photoacoustic and photothermal spectroscopies
[IS-H-202] 25 p0129 N80-12611

MCCLELLABD, B. H.
Low/medium BTU coal gasification - Perspective of
       the gas industry
                                                   25 p0015 A80-11969
MCCLENDON, R. W.
     Addition of solar air heaters to a pre-engineered
metal building
[ASME PAPER 79-WA/SOL-33] 25 p0066 A6
MCCLUBE, T. A.
Sugar crops as a source of fuels. Volume 1:
                                                   25 p0066 A80-18566
       Agricultural research
BCCORNICK, J. B.
Development of integrated thermionic circuits for
        geothermal high-temperature applications [LA-UR-79-723] 25 p0112 N80-11592
 MCCORNICK. N. J.
     Fuel production characteristics of fusion hybrid
                                                   25 p0059 A80-17888
 MCCRACKEN, G. H.
Results from the Divertor Injection Tokamak
        Experiment /DITE/
                                                    25 p0054 A80-17754
 MCCREIGHT, L. R.
     Sintered silicon nitrode recuperator fabrication
 [NASA-CR-159706]
HCCULLOCH, W. H.
                                                    25 p0167 N80-15263
     hidtemperature Solar Systems Test Pacility (MSSTF)
project test results: Phase 4A MSSTF system
        operation
[SAND-78-1088]
                                                    25 p0114 N80-11613
 HCCURRY, D. C.
Heat pump centered integrated community energy
systems; System development
[ANL-ICES-TM-28] 25 p0111 N80
                                                    25 p0111 N80-11574
     District space heating potential of low
temperature hydrothermal geothermal resources in
        the southwestern United States
                                                    25 p0172 N80-15582
        [NMEI-10-1]
 MCDOWALD, C. P.
A small hybrid solar closed-cycle gas turbine
        cogeneration plant concept based on today's
 technology
[ASME PAPER 79-WA/GT-3]

ECDOBALD, C. L.
User manual for GEOCITY: A computer model for geothermal district heating cost analysis

CDUI-2742]

25 p0113 N80-11605
 MCGREGOR, K. T.
Emissions assessment of conventional stationary
combustion systems. Volume 1: Gas- and
oil-fired residential heating sources
                                                    25 p0131 N80-12637
        [PB-298494/6]
  MCINTIRE, W. R.
      Truncation of nonimaging cusp concentrators
                                                    25 p0029 A80-12824
```

Energy development vs water quality in the upper Colorado and upper Missouri River Basins

25 p0117 N80-11641

```
25 p0055 A80-17825
ECRIBBEH, R.

EPA utility PGD (Flue Gas Desulfurization) survey:

December 1978 - January 1979

25 p0179 N80-156
       [PB-299399/6]
                                                      25 p0179 N80-15682
MCKINLEY. T.
    Development of the Rocky Mountain Energy and
       Environmental Technology Center: A preliminary
       analysis
       [ ORAU-158]
                                                      25 p0179 N80-15670
MCBEBSE, L. E.
    Recent developments in coal liquefaction in the
       United States
                                                      25 p0015 A80-11966
MCBICOL, B. D.
    The methanol-air fuel cell - A selective review of methanol oxidation mechanisms at platinum electrodes in acid electrolytes
                                                      25 p0042 A80-16146
MCHITT, J. R.
The United Nations' approach to geothermal
       resource assessment
                                                      25 p0076 A80-19207
ECPARTLAND, B. J.
Theoretical analysis of multi-cell, high
efficiency broad spectral sensitivity solar cells
25 p0138 N80-13617
 MCWANE, P. D.
    Ohio exposition center solar home project
[FB-298541/4] 25 p0164 N80-14577
 MCWILLIAMS, B.
     Steady-state currents driven by collisionally damped lower-bybrid waves
                                                      25 p0084 A80-20157
 MEADOR, J. T.
     Steam turbines
[ANL/CES/TE-78-7]
                                                       25 p0095 N80-10502
 MEAKIN, J. D.
     Improvements in the performance of a low cost thin
        film solar cell
                                                       25 p0018 A80-11989
 MEARS, J. C., JR.
Comparison of predicted and measured solar energy
system performance
        [ASME PAPER 79-WA/SOL-39]
                                                       25 p0069 A80-18589
 MEDIN, S. A.
     Determination of the geometry of the transition region of a series MHD generator

25 p0030 A80-12900
     Heat transfer in the channel of a high-power MHD
                                                       25 p0035 A80-14516
     Influence of the loading factor on the performance
        characteristics of series MBD generators
25 p0061 A80-18137
 MEGAHED, M.
A study of the solar LiBr dual cycle characteristics
[AIAA PAPER 80-0400] 25 p0077 A80-19327
 BEHTA, A. J.
Sulfur fixation during coal gasification
                                                       25 p0169 N80-15296
        [PB-301104/6]
 MEI, J. S.
Fluidized-bed combustion of high sulfur coals
[MEIC/RI-79/4] 25 p0093 N8
                                                       25 p0093 N80-10386
  MBILKÈ, P.
      Assessment of the applicability of the national fire weather data library to wind energy analyses
[PNI-2538] 25 p0165 N80-14655
  MBISEL, D.
      Accumulation of impurities and stability behaviour in the high-density regime of Pulsator
                                                       25 p0054 A80-17759
 #ELIA, #.

EPA utility FGD (Flue Gas Desulfurization) survey:

December 1978 - January 1979

[PB-299399/6] 25 p0179 N80-1560
                                                        25 p0179 N80-15682
  MELSA, J. L.
Optimal control studies of a solar heating system
      LA-UH-78-2556] 25 p0100 H80-10646
Energy savings for a solar heated and cooled
building through adaptive optimal control
[LA-UH-78-2986] 25 p0115 NO. 4444
```

MCKEE, M.

[LA-7497-HS]

PERSONAL AUTHOR INDEX MINGLE, J. G.

EREDITH, D. B.	MILKE, T.
Performance of residential solar heating and	New hybrid 1971 energy intensities, part 1
COOLING System with flat-plate and evacuated	[COO-4628-4-PT-1] 25 p0158 N80-14516
tubular collectors: CSU solar house 1	MILLAR, W.
[COO-2577-16] 25 p0163 N80-14568 Performance of residential solar heating and	Heating, confinement and fluctuations in the CLEO stellarator
cooling system with flat-plate and evacuated	25 p0055 A80-17826
tubular collectors: CSU Solar House 1	MILLER, A. K.
[COO-2577-17] 25 p0176 N80-15616	Recent spin test of two composite wagon wheel flywheels
Resolving environmental issues in energy	[SAND-79-1669C] 25 p0140 N80-13640
development: Roles for the Department of Energy	MILLER, B. 23 po 140 N80-13640
and its field offices	Power conversion efficiency monitoring in
[RAND/R-2335-DOE] 25 p0099 N80-10636	photoelectrochemical and other solar cells
IERTENS, J. J. R.	25 p0062 A80-18214
Experimental techniques and mathematical models in	MILLER, P. G.
the study of waste pyrolysis and gasification 25 p0001 A80-10028	Analysis of reservoir pressure and decline curves
IETCALFE, H. A.	in Serrazzano zone, Larderello geothermal field
A survey of electric and hybrid vehicle simulation	MILLER, G. 25 p0075 A80-19204
programs	Recent developments in linear theta-pinch and
[NASA-CR-162457] 25 p0118 N80-11954	laser-heated solenoid research
METZ, P. D.	25 p0055 A80-17825
State of the art of sensible heat storage for	MILLER, R. A.
solar heat pump systems	Thermal barrier coatings for aircraft gas turbines
[BNL-25909] 25 p0101 N80-10651	[AIAA PAPEE 80-0302] 25 p0064 A80-18303
Design, construction, and operation of the solar assisted heat pump ground coupled storage	MILLER, B. D. C.
experiments at Brookhaven National Laboratory	Calculations of inertial confinement fusion gains
[BNL-25908] 25 p0142 N80-13654	using a collective model for reheat, bremsstrahlung and fuel depletion for highly
MEYER, C.	efficient electrodynamic laser compressions
Technico economic study of the use of hydrogen and	25 p0058 A80-17875
methanol for road transport	MILLER, R. H.
25 p0C42 A80-15993	On the weathervaning of wind turbines
IETER, C. F.	25 p0047 A80-16952
Large-scale annual-cycle thermal energy storage in	HILLER, W. B.
aguifers [CONP-790515-3] 25 p0145 N80-13686	Review of industrial participation on the ANL
[CONF-790515-3] 25 p0145 N80-13686	lithium/iron sulfide battery development program [CONF-780852-1] 25 p0164 N80-14573
Control technology for coal-fired combustion in	[CONF-780852-1] 25 p0164 N80-14573 HILLIMAN, J. W.
Northeastern U.S. A - Overview and sulfur	Analysis of financial programs for energy
emissions control. B - Particulates, NOx and	conservation: Market simulation (penetration)
combined systems	model
25 p0074 A80-18883	[HCP/M8662-1] 25 p0114 N80-11606
iiccio, n.	MILLNER, A. B.
The calculation of carbon load and axial profiles	Plywheels for energy storage
of oxygen concentration in the bed of a fluidized combustor	25 p0019 A80-12166
25 p0077 A80-19421	Flywheel energy storage and conversion system for
MICHAELIS, R. P.	solar photovoltaic applications [COO-4094-31] 25 p0100 N80-10639
A solar-heated water system for a photographic	[COO-4094-31] 25 p0100 N80-10639 Plywheel energy storage interface unit for
processing laboratory	photovoltaic applications
25 p0041 A80-15750	[COO-4094-44] 25 p0 175 N80-15609
ICHALSKI, S. B.	Plywheel energy storage and conversion system for
Management of coal preparation fine wastes without	photovoltaic applications
disposal ponds	[COO-4094-48] 25 p0178 N80-15635
[PB-299100/8] 25 p0180 N80-15691	HILNE, T. A.
IICHEL, J. W. Experimental and analytical OTEC studies at ORNL	Research overview of biological and chemical
[CONF-790631-1] 25 p0143 N80-13666	conversion methods and identification of key research areas for SERI
ICHELOTTI, D. P.	[SERI/TB-33-067] 25 p0115 N80-11617
Effect of vertical scale distortion on the	MILNES, A. G.
temperature field of a thermal-hydraulic model	Optimization of multi-layer front-contact grid
[PB-297274/3] 25 p0108 N80-11551	patterns for solar cells
IICRA, K.	25 p0028 A80-12816
Plastic bonded electrodes for nickel-cadmium	MILNES, R.
accumulators. I - Cadmium electrode 25 p0043 A80-16147	150-kV, 80-A solid state power supply for neutral
IICKLE, 8. H.	beam injection
Modeling and simulation. Volume 10 - Proceedings	25 p0080 A80-19617
of the Tenth Annual Pittsburgh Conference,	Photoconverter with bilateral sensitivity
University of Pittsburgh, Pittsburgh, Pa., April	25 p0044 A80-16625
25-27, 1979. Part 2 - Systems and control	HIBA, K.
25 p0087 A80-20862	Inertial confinement fusion research at Osaka
Modeling and simulation. Volume 10 - Proceedings	25 p0057 A80-17868
of the Tenth Annual Pittsburgh Conference,	MINARDI, A.
University of Pittsburgh, Pittsburgh, Pa., April	An optimization formulation for solar hot water
25-27, 1979. Part 3 - Energy and environment 25 p0087 A80-20881	Systems
IID2UNO, Y.	[ASME PAPER 79-WA/SOL-42] 25 p0068 A80-18578 MINCHEW, C. D.
Non-stochastic heating of magnetized plasma by	The analysis of sediment samples for hydrocarbons
electrostatic wave	[AD-A073822] 25 p0149 N80-13754
25 p0043 A80-16194	MINGLE, J. G.
IKHEICHEV, P. A.	Investigation of the viability and cost
An engine fuel chemistry solution to the problem	effectiveness of solid fuel gasifiers close
of jet fuel supplies	coupled to internal combustion engines for 200
25 p0001 A80-10199	kWe power generation [DOE/RL-90476-13] 25 p0169 N80-15293
	[DOE/RL-90476-13] 25 p0169 N80-15293

MIRONOV, B. N. Principles of plasma heating and confinement in a	MORI, Y. MED boundary layer of the seeded combustion gas near cold electrodes
compact toroidal configuration 25 p0055 A80-17822	25 p0047 A80-17004
MISKBLL, J. 1. Gasoline's alternatives are feasible	HORRIS, G. Environmental aspects of alternative energy
25 p0034 A80-13225 HITCHEL, G.	technologies for California [UCRL-15002] 25 p0131 N80-12628
Evidence of nonlinear processes from I-ray spectra of CO2 laser-irradiated targets	MORRIS, P. W. Coal-shale interface detection system
25 p0046 A80-16776	[NASA-CASE-MFS-23720-2] 25 p0152 H80-14423 MOBBIS, S. C.
Computers in the design of solar energy systems 25 p0020 A80-12426	Coal conversion technologies - Some health and environmental effects
Comparisons of measured and simulated performance for CSU Solar House I	25 p0006 A80-11369
[ASME PAPER 79-WA/SOL-35] 25 p007C A80-18590	Combustion of low grade coal [ICTIS/TR-02] 25 p0106 N80-11179
MITCHELL, L. D. Modeling and experimental analysis of a fluidic	Hot gas cleanup [ICTIS/TR-03] 25 p0117 180-11647
generator [ASME PAPER 79-DET-9] 25 p0041 A80-15705	HORSE, F. B.  Commercialization strategy report for solar water
MITOFF, S. P. Computer modelling of electrically parallel arrays	heating
of sodium-sulphur cells 25 p0013 A80-11865	MOSER, H. C.
HITROVICH, D.  The KMSF laser fusion programme	MeV cluster ion beam diagnostics by means of calorimetry and time-of-flight spectroscopy
25 p0056 A80-17860 HITSOI, A.	25 p0080 A80-19612 Construction and test of a high power injector of
Biological and biochemical hydrogen production .25 p0053 A80-17581	hydrogen cluster ions 25 p0080 A80-19618
MITABARA, A.  Constant current and constant voltage excitation	MOSES, H. Impacts of satellite power system technology
of large coils by flywheel-generator-converter 25 p0080 A80-19624	25 p0048 A80-17132
MINAMOTO, S. Inertial confinement fusion research at Osaka	Inertial confinement fusion at NRL 25 p0056 A80-1786
25 p0057 A80-17868	MOSIN, I. I. Selection of optimal parameters of heat-pipe heat
Inertial confinement fusion research at Osaka 25 p0057 A80-17868	exchanger for a gas turbine engine 25 p0003 A80-10613
MBATSAKABIAB, A. KB.  Heat transfer in the channel of a high-power MHD	Study of heat-pipe heat exchanger in the small gas turbine engine system
generator 25 p0035 A80-14516	25 p0091 N80-10022 Selection of optimal parameters of heat-pipe heat
MODEST, M. F.  Heat transfer analysis of receivers for a solar	exchanger for a gas turbine engine 25 p0091 N80-1006
concentrating collector [ASME PAPER 79-WA/SOL-20] 25 p0065 A80-18558	MOSKOWITZ, P. D. Coal conversion technologies - Some health and
MOBNCE, A. F. Transient-pressure analysis in geothermal steam	environmental effects 25 p0006 A80-11369
reservoirs with an immobile vaporizing liquid phase	MOSKOWITZ, S.  Combustion of anthracite culm in a fluidized bed
25 p0076 A80-19209	· boiler 25 p0014 A80-1195
The KMSF laser fusion programme 25 p0056 A80-17860	MOSKVICHEVA, V. N. Energetics aspects of environmental protection
MONTGOMERY, W. D., III The 1985, 1990 and 1995 midtern energy market	25 p0072* A80-1873.
model results under three scenarios of Fuel Use	Geology of the Athabasca oil sands 25 p0050 A80-1723
Act regulations [DOE/EIA-0182/2] 25 p0173 N80-15592	HOTLEY, B. W. Steady-state currents driven by collisionally
MOORE, S. W. Performance of Los Alamos solar Mobile/Modular	damped lower-hybrid waves 25 p0084 A80-2015
Home Unit no. 1 [LA-UR-78-2587] 25 p0126 N80-12577	MOTOJINA, O.
MOORTHY, P. M. Study of photochemical processes in the	Study of current-driven magnetohydrodynamic instability in the Heliotron-D device
ferrous-thionine system 25 p0027 A80-12783	25 p0084 A80-2015
MORAGURS, J. A. Photothermal conversion of solar energy into	The physics of laser fusion 25 p0019 A80-1204
electricity [DOE-TE-159] 25 p0130 N80-12612	MOULTHROUP, P. National energy act of 1978: Far western
MORARŪ, D. Some promising aspects regarding solar en∈rgy	perspective. A study for the US Department of Energy, Federal Region 9
conversion with metal oxide photovoltaic cells 25 p0011 A80-11853	[UCID-17944-REV-1] 25 p0132 N80-1295
MORREGUSE, J. E. Residential solar heat pump systems - Thermal and	SEASAT demonstration experiments with the offshore oil, gas and mining industries
economic performance [ASME PAPER 79-WA/SOL-25] 25 p007C A80-18591	[NASA-CR-162423] 25 p0108 N80-1153 Preliminary assessment of industrial needs for an
MORBLAND, W. C. Performance monitoring of an off-peak heating and	advanced ocean technology [NASA-CR-162435] 25 p0118 N80-1174
cooling system utilizing thermal storage and solar augmented heat pump	MOYER, G. Minimum cost transmitter-receiver antenna pairs
[EPBI-EE-845] 25 p0102 N80-10662	[BM-690] 25 p0094 N80-1041

PERSONAL AUTHOR INDEX NEARHOOF, S. L.

OTRE, G. P.	HYAL, D.
Methods of estimating the reliability of wind	Bell Creek residual oil saturation technology test
energy systems with storage [UCBL-15005] 25 p0098 N80-10623	[BETC-2180-4] 25 p0108 N80-11546
IRHA, J.	N
Non-sintered plastic-bonded nickel oxide electrodes with open structure and their	NABOZHY, R. L.
electrochemical performance	Heat storage and thermal transfer aspects of the
25 p0009 A80-11839 High-efficiency alkaline accumulator with cadmium	dynamic behaviour of a packed bed
mass treated with oxalic acid	HACK, H. 25 p0121 H80-12342
25 p0010 A80-11842 Plastic bonded electrodes for nickel-cadmium	Environmental assessment of the fluidized-bed
accumulators. I - Cadmium electrode	combustion of coal: Methodology and initial results
OBLIER, R. I. 25 p0043 A80-16147	[PB-298473/0] 25 p0165 N80-14595
Method for forming a solar array strip	Solar energy flat plate collectors - Optimization
[NASA-CASE-NPO-13652-3] 25 p0 153 N80-14474	of air gap
Solar availability for winter space heating - An	HAIR, H. J. 25 p0023 A80-12745
analysis of SOLMET data, 1953 to 1975	Beliability studies on thin film solar cells for
25 p0006 A80-11370 Electric heat - The right price at the right time	satellite application
25 p0062 A80-18184	WAJIH, S. B. 25 p0027 A80-12775
UPPLER, P.	Combustion and turbulence characteristics of
Methods for regional assessment of geothermal resources	cyclone combustors for burning low calorific value fuels
25 p0C75 A80-19202	[AIAA PAPER 80-0075] 25 p0076 A80-19275
Assessment of geothermal potential of central and southern Tuscany	NAKAHURA, T.
25 p0075 A80-19203	Performance of disk generators for open-cycle MHD power generation
CHR, W.	25 p0007 A80-11642
Experiences with the practical use of an Andersen cascade impactor in the exhaust gas of various	NAUDA, S. K. A seasonally adjusted concentrating collector made
industrial sites	of mirror strips
UIRHEAD, V. U. 25 p0074 A80-18861	25 p0024 A80~12750
Reduction of aerodynamic drag and fuel consumption	BABAGHI, M.  End plugging of a hot linear theta pinch
for tractor-trailer vehicles	25 p0055 A80-17824
UKHERJEE, D. 25 p0046 A80-16948	NABAYAN, R. Studies of photogalvanic cells
Bogus-type treatment of Cu2S-CdS solar cells using	25 p0023 A80-12743
deposition from solution 25 p0028 A80-12788	NARAYANAN, T. V.
UKBERJEE, M. K.	Interim structural design standard for solar energy applications, phases 1 and 2
Reliability studies on thin film solar cells for satellite application	[SAND-79-8183] 25 p0 146 N80-13698
25 p0027 A80-12775	BARGUNDKAR, V. R. Experimental studies of neutron multiplication
Bogus-type treatment of Cu2S-CdS solar cells using deposition from solution	from beryllium /n, 2n/ reaction in CTR blankets
25 p0028 A80-12788	NARKUS-KRAHER, M. 25 p0081 A80-19662
UKHOPADHYAY, K.	Environmental data for energy technology policy
Annealing and degradation studies of ceramic CdS solar cells	analysis. Volume 1: Summary
25 p0026 A80-12771	NASBY, R. D.
ULLICK, S. C. A seasonally adjusted concentrating collector made	Design and performance of silicon solar cells
of mirror strips	under concentrated sunlight [SAND-79-1165C] 25 p0172 N80-15577
UNRO, J. K. 25 p0024 A80-12750	WASH, J. H.
High-beta tokamaks	Comparison of predicted and measured solar energy system performance
URAYEVA, H. I. 25 p0054 A80-17789	[ASME PAPER 79-WA/SOL-39] 25 p0069 A80-18589
Development of optical waveguides for a	A study of the solar LiBr dual cycle characteristics
power-related application	LAIAA PAPER 80-0400 ] 25 m0077 A80-19327
DRLIDHAR, NR. 25 p0036 A80-14596	NATARAJAB, R.
Performance studies on uniform illumination type	An investigation of experimental performance of a compound parabolic concentrator
nontracking concentrators	25 p0023 A80-12748
ORMANN, 6. 25 p0026 A80-12766	NAZABOV, N.  Broadband varizone Ga/1-x/Al/x/As-Si-photoelectric
Accumulation of impurities and stability behaviour	converters with an illuminated n-region
in the high-density regime of Pulsator 25 p0054 A80-17759	EAZEMI, M. A
JRPHY, A.	Unleaded gasoline shortages and fuel switching -
A simplified procedure for performance of solar systems with heat pumps	The potential impact in Southern California
[ASHE PAPER 79-WA/SOL-23] 25 p0065 A80-18555	NEALE, D. H., SR. 25 p0004 A80-11019
JRPHY, R. W.  Condensation and evaporation heat transfer with	Mach 3 hydrogen external/base burning
low-boiling temperature fluids	[AIAA PAPER 80-0280] 25 p0077 A80-19311 BEARHOOF, S. L.
[CONF-790539-1] 25 p0137 N80-13412	Residential photovoltaic module and array
JRTHY, K. S.  Environmental assessment of the fluidized-bed	requirements study, appendices
combustion of coal: Methodology and initial	[NASA-CR-162529] 25 p0154 N80-14481 Residential photovoltaic module and array
results [PB-298473/0] 25 p0165 N80-14595	requirements study
L	[ NASA-CR-1625281 25 p0154 Nao-14402

Comparative performance measurements on a Savonius rotor with ancillary surfaces

BGGYEN, K. H. Cost-effective control systems for solar heating

MGUYEN, P. H. Copper diffusion and photovoltaic mechanisms at

A vortex model of the Darrieus turbine - An

Low NO(x) heavy fuel combustor program

analytical and experimental study
[ASME PAPER 79-WA/PE-6] 25 p0070 A80-18620

and cooling applications

[SAN-1592-1]

Cu-CdS contact

[NASA-TM-79313]

25 p0042 A80-16085

25 p0101 N80-10658

25 p0033 A80-13204

25 p0138 N80-13624

25 p0021 A80-1243

NGUYEN, D. V.

NGUYEN, T.

NICHOLS, L.

MICHOLS, R. J.

HEDOSPASOV, A. V.	
Concept of tokamak-type reactor with	ith
high-temperature blanket	25 p0059 A80-17885
MEPEDKINA, L. B.	25 pooss 200
Concept of tokamak-type reactor w	ith
high-temperature blanket	
	25 p0059 A80-17885
NEIHOP, B. A. Microbial deterioration of hydroca	arbon fuels from
oil shale, coal, and petroleum.	1: Exploratory
experiments	
[AD-A073761]	25 p0150 N80-14259
NELSON, D. B.	
High-beta tokamaks	25 -0054 300-17700
The Elmo Bumpy Torus /EBT/ reactor	25 p0054 A80-17789
THE EIMO Bampy Tords /LDI/ Tedector	25 p0058 A80-17883
NELSON, E. L.	•
Current U. S. petroleum situation	and short-term
supply/demand outlook	
[DOE/ELA-0184/5]	25 p0138 N80-13607
NELSON, E. T. Research and evaluation of biomas.	s
resources/conversion/utilizatio (market/experimental analysis f	or development of
a data base for a fuels from bi	omass model)
[C00-5022-5]	25 p0172 N80-15576
NELSON, P. A. Lithium/iron sulfide batteries fo	r electric vehicles
[CONF-781006-2]	25 p0175 N80-15611
NELSON, S.	20 poste mos 100 11
Applications of fuel cells in tra	nsportation
[LA-UR-79-628]	25 p0159 N80-14526
NBMEC, J.	
Environmental protection in the p	25 p0030 A80-12943
HEMBCEK, J. J.	25 pooso 200 12545
Design of a small thermochemical	receiver for
solar thermal power	
	25 p0005 A80-11338
NEMETZ, D. L.	
all	
Solar energy system performance e	
Solar energy system performance e A-Frame Industries, single fami	
Solar energy system performance e	
Solar energy system performance e A-Frame Industries, single fami Kaneohe, Hawaii [SOLAR/1010-78/14] NENE, V. D.	ly dwelling, 25 p0101 N80-10659
Solar energy system performance e A-Frame Industries, single fami Kaneohe, Hawaii [SOLAR/1010-78/14] NENE, V. D. The status of advanced propulsion	ly dwelling, 25 p0101 N80-10659
Solar energy system performance e A-Frame Industries, single fami Kaneohe, Hawaii [SOLAR/1010-78/14] NENE, V. D. The status of advanced propulsion urban rail vehicles	ly dwelling, 25 p0101 N80-10659 systems for
Solar energy system performance e A-Frame Industries, single fami Kaneohe, Hawaii [SOLAR/1010-78/14] NENE, V. D. The status of advanced propulsion urban rail vehicles [PB-297980/5]	ly dwelling, 25 p0101 N80-10659
Solar energy system performance e A-Frame Industries, single fami Kaneohe, Hawaii [SOLAR/1010-78/14] NENE, V. D. The status of advanced propulsion urban rail vehicles [PB-297980/5] NERI, G. Analysis of reservoir pressure an	1y dwelling, 25 p0101 N80-10659 25 p0133 N80-12962 d decline curves
Solar energy system performance e A-Frame Industries, single fami Kaneohe, Hawaii [SOLAR/1010-78/14] NENE, V. D. The status of advanced propulsion urban rail vehicles [PB-297980/5] WERI, G.	ly dwelling, 25 p0101 N80-10659 systems for 25 p0133 N80-12962 d decline curves geothermal field
Solar energy system performance e A-Frame Industries, single fami Kaneohe, Hawaii [SOLAR/1010-78/14] NENE, V. D. The status of advanced propulsion urban rail vehicles [PB-297980/5] WERI, G. Analysis of reservoir pressure an in Serrazzano zone, Larderello	1y dwelling, 25 p0101 N80-10659 25 p0133 N80-12962 d decline curves
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  WERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  WESTLER, J.	1y dwelling, 25 p0101 N80-10659 systems for 25 p0133 N80-12962 d decline curves geothermal field 25 p0075 A80-19204
Solar energy system performance e A-Frame Industries, single fami Kaneohe, Hawaii [SOLAR/1010-78/14] NENE, V. D. The status of advanced propulsion urban rail vehicles [PB-297980/5] NERI, G. Analysis of reservoir pressure an in Serrazzano zone, Larderello HESTIER, J. Unconventional circuits for stati	1y dwelling, 25 p0101 N80-10659 systems for 25 p0133 N80-12962 d decline curves geothermal field 25 p0075 A80-19204
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  WERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  WESTLER, J.	1y dwelling, 25 p0101 N80-10659 systems for 25 p0133 N80-12962 d decline curves geothermal field 25 p0075 A80-19204
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  NERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  HESTLER, J.     Unconventional circuits for stati     transformers     [BHFT-FE-T-78-26]  NEUBAUER, P.	1y dwelling, 25 p0101 N80-10659 systems for 25 p0133 N80-12962 dd decline curves geothermal field 25 p0075 A80-19204 c voltage 25 p0107 N80-11368
Solar energy system performance e A-Frame Industries, single fami Kaneohe, Hawaii [SOLAR/1010-78/14]  NENE, V. D. The status of advanced propulsion urban rail vehicles [PB-297980/5]  NERI, G. Analysis of reservoir pressure an in Serrazzano zone, Larderello  NESTLER, J. Unconventional circuits for stati transformers [BMFT-FB-T-78-26]  NEUBAUER, P. Pilot scale evaluation of NOX com	1y dwelling, 25 p0101 N80-10659 systems for 25 p0133 N80-12962 dd decline curves geothermal field 25 p0075 A80-19204 c voltage 25 p0107 N80-11368
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  WERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  WESTLER, J.     Unconventional circuits for stati     transformers     [BMFT-FE-T-78-26]  WEUBAUER, P.     Pilot scale evaluation of NOX com     for pulverized coal, phase 2	1y dwelling, 25 p0101 N80-10659  systems for 25 p0133 N80-12962  d decline curves geothermal field 25 p0075 A80-19204  c voltage 25 p0107 N80-11368  abustion control
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  WERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  WESTLER, J.     Unconventional circuits for stati     transformers     [BMFT-FB-T-78-26]  WEUBAUER, P.     Pilot scale evaluation of NOX com     for pulverized coal, phase 2     [PB-299325/1]	1y dwelling, 25 p0101 N80-10659 systems for 25 p0133 N80-12962 dd decline curves geothermal field 25 p0075 A80-19204 c voltage 25 p0107 N80-11368
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  WERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  WESTLER, J.     Unconventional circuits for stati     transformers     [BMFT-FE-T-78-26]  WEUBAUER, P.     Pilot scale evaluation of NOX com     for pulverized coal, phase 2	1y dwelling, 25 p0101 N80-10659 systems for 25 p0133 N80-12962 d decline curves geothermal field 25 p0075 A80-19204 c voltage 25 p0107 N80-11368 abustion control 25 p0180 N80-15687
Solar energy system performance e A-Frame Industries, single fami Kaneohe, Hawaii [SOLAR/1010-78/14]  NENE, V. D. The status of advanced propulsion urban rail vehicles [PB-297980/5]  NERI, G. Analysis of reservoir pressure an in Serrazzano zone, Larderello  NESTLER, J. Unconventional circuits for stati transformers [BMFT-FE-T-78-26]  NEUBAUER, P. Pilot scale evaluation of NOx com for pulverized coal, phase 2 [PB-299325/1]  NEUMANN, B. The role of coal in the world ene the year 2000 - Reserves, resou	1y dwelling, 25 p0101 N80-10659 25 p0133 N80-12962 26 decline curves geothermal field 25 p0075 A80-19204 25 p0107 N80-11368 25 p0107 N80-15687 25 p0180 N80-15687 27 py picture up to
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  NERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  NESTLER, J.     Unconventional circuits for stati     transformers     [BHFT-PB-T-78-26]  NEUBAUER, P.     Pilot scale evaluation of NOX com     for pulverized coal, phase 2     [PB-299325/1]  NEUMANN, R.     The role of coal in the world energy	ly dwelling,  25 p0101 N80-10659  systems for  25 p0133 N80-12962  dd decline curves geothermal field 25 p0075 A80-19204  c voltage  25 p0107 N80-11368  abustion control  25 p0180 N80-15687  ergy picture up to arces, and auropean viewpoint
Solar energy system performance e A-Frame Industries, single fami Kaneohe, Hawaii [SOLAR/1010-78/14]  NENE, V. D.  The status of advanced propulsion urban rail vehicles [PB-297980/5]  NERI, G. Analysis of reservoir pressure an in Serrazzano zone, Larderello  HESTLER, J. Unconventional circuits for stati transformers [BHFT-FB-T-78-26]  NEUBAUER, P. Pilot scale evaluation of NOX com for pulverized coal, phase 2 [PB-299325/1]  HEUMANN, B.  The role of coal in the world ene the year 2000 - Reserves, reson availability from the Western F	1y dwelling, 25 p0101 N80-10659 25 p0133 N80-12962 26 decline curves geothermal field 25 p0075 A80-19204 25 p0107 N80-11368 25 p0107 N80-15687 25 p0180 N80-15687 27 py picture up to
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  NERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  NESTLER, J.     Unconventional circuits for stati     transformers     [BMFT-FB-T-78-26]  NEUBAUER, P.     Pilot scale evaluation of NOx com     for pulverized coal, phase 2     [PB-299325/1]  NEUMANN, R.     The role of coal in the world ene     the year 2000 - Reserves, reson     availability from the Western F	1y dwelling, 25 p0101 N80-10659  systems for 25 p0133 N80-12962  dd decline curves geothermal field 25 p0075 A80-19204  c voltage 25 p0107 N80-11368  abustion control 25 p0180 N80-15687  ergy picture up to arces, and auropean viewpoint 25 p0040 A80-15625
Solar energy system performance e A-Frame Industries, single fami Kaneohe, Hawaii [SOLAR/1010-78/14]  NENE, V. D.  The status of advanced propulsion urban rail vehicles [PB-297980/5]  NERI, G. Analysis of reservoir pressure an in Serrazzano zone, Larderello  HESTLER, J. Unconventional circuits for stati transformers [BHFT-FB-T-78-26]  NEUBAUER, P. Pilot scale evaluation of NOX com for pulverized coal, phase 2 [PB-299325/1]  HEUMANN, B.  The role of coal in the world ene the year 2000 - Reserves, reson availability from the Western F	1y dwelling, 25 p0101 N80-10659 25 p0103 N80-12962 26 decline curves geothermal field 25 p0075 A80-19204 25 p0107 N80-11368 25 p0107 N80-15687 25 p0180 N80-15687 27 picture up to 28 po109 N80-15687 28 po109 N80-15687 29 picture up to 25 p0100 N80-15687 29 picture up to 25 p0100 N80-15687 29 picture up to 25 p0100 N80-15687
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  NERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  NESTLER, J.     Unconventional circuits for stati     transformers     [BMFI-FB-T-78-26]  NEUBAUER, P.     Pilot scale evaluation of NOX com     for pulverized coal, phase 2     [PB-299325/1]  NEUMANN, R.     The role of coal in the world ene     the year 2000 - Reserves, reson     availability from the Western F.  NEUMANN, T. W.     Design of the International Energ     distributed-collector solar the     powerplant	1y dwelling, 25 p0101 N80-10659  systems for 25 p0133 N80-12962  dd decline curves geothermal field 25 p0075 A80-19204  c voltage 25 p0107 N80-11368  abustion control 25 p0180 N80-15687  ergy picture up to arces, and auropean viewpoint 25 p0040 A80-15625  gy Agency 500 kWe ermal-electric
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  NERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  NESTLER, J.     Unconventional circuits for stati     transformers     [BMFT-FB-T-78-26]  NEUBAUER, P.     Pilot scale evaluation of NOx com     for pulverized coal, phase 2     [PB-299325/1]  NEUHANN, R.     The role of coal in the world ene     the year 2000 - Reserves, resor     availability from the Western F  NEUMANN, T. W.     Design of the International Energy     distributed-collector solar the     powerplant     [ASME PAPER 79-WA/SOL-6]	1y dwelling, 25 p0101 N80-10659 25 p0103 N80-12962 26 decline curves geothermal field 25 p0075 A80-19204 25 p0107 N80-11368 25 p0107 N80-15687 25 p0180 N80-15687 27 picture up to 28 po109 N80-15687 28 po109 N80-15687 29 picture up to 25 p0100 N80-15687 29 picture up to 25 p0100 N80-15687 29 picture up to 25 p0100 N80-15687
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  NERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  NESTLER, J.     Unconventional circuits for stati     transformers     [BHFT-PB-T-78-26]  NEUBAUER, P.     Pilot scale evaluation of NOx com     for pulverized coal, phase 2     [PB-299325/1]  NEUMANN, R.     The role of coal in the world ene     the year 2000 - Reserves, reson     availability from the Western F  NEUMANN, T. W.     Design of the International Energy     distributed-collector solar the     powerplant     [ASME PAPER 79-WA/SOL-6]  HEVITT, J. S.	1y dwelling, 25 p0101 N80-10659  systems for 25 p0133 N80-12962  dd decline curves geothermal field 25 p0075 A80-19204  c voltage 25 p0107 N80-11368  abustion control 25 p0180 N80-15687  ergy picture up to arces, and 25 p0140 A80-15625  gy Agency 500 kWe ermal-electric 25 p007C A80-18592
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  NERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  NESTLER, J.     Unconventional circuits for stati     transformers     [BMFT-FB-T-78-26]  NEUBAUER, P.     Pilot scale evaluation of NOx com     for pulverized coal, phase 2     [PB-299325/1]  NEUMANN, R.     The role of coal in the world ene     the year 2000 - Reserves, resor     availability from the Western F  NEUMANN, T. W.     Design of the International Energy     distributed-collector solar the     powerplant     [ASME PAPER 79-WA/SOL-6]  NEVITT, J. S.     Unleaded gasoline shortages and in	1y dwelling, 25 p0101 N80-10659 25 p0103 N80-12962 26 decline curves geothermal field 25 p0075 A80-19204 26 voltage 27 p0107 N80-11368 28 abustion control 28 p0180 N80-15687 29 picture up to 25 p01040 A80-15625 29 Agency 500 KWe ermal-electric 25 p007C A80-18592 Equal Switching -
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  NERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  NESTLER, J.     Unconventional circuits for stati     transformers     [BHFT-PB-T-78-26]  NEUBAUER, P.     Pilot scale evaluation of NOx com     for pulverized coal, phase 2     [PB-299325/1]  NEUMANN, R.     The role of coal in the world ene     the year 2000 - Reserves, reson     availability from the Western F  NEUMANN, T. W.     Design of the International Energy     distributed-collector solar the     powerplant     [ASME PAPER 79-WA/SOL-6]  HEVITT, J. S.	1y dwelling, 25 p0101 N80-10659 25 p0103 N80-12962 26 decline curves geothermal field 25 p0075 A80-19204 26 voltage 27 p0107 N80-11368 28 abustion control 28 p0180 N80-15687 29 picture up to 25 p01040 A80-15625 29 Agency 500 KWe ermal-electric 25 p007C A80-18592 Equal Switching -
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  WERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  WESTLER, J.     Unconventional circuits for stati     transformers     [BMFT-FB-T-78-26]  WEUBAUER, P.     Pilot scale evaluation of NOx com     for pulverized coal, phase 2     [PB-299325/1]  WEUMANN, R.     The role of coal in the world ene     the year 2000 - Reserves, resor     availability from the Western F  WEUMANN, T. W.     Design of the International Energy     distributed-collector solar the     powerplant     [ASME PAPER 79-WA/SOL-6]  WEVITT, J. S.     Unleaded gasoline shortages and i     The potential impact in Souther	1y dwelling, 25 p0101 N80-10659  systems for 25 p0133 N80-12962  dd decline curves geothermal field 25 p0075 A80-19204  c voltage 25 p0107 N80-11368  abustion control 25 p0180 N80-15687  ergy picture up to arces, and arcopean viewpoint 25 p0040 A80-15625  gy Agency 500 kWe ermal-electric 25 p007C A80-18592  fuel switching - c California 25 p0004 A80-11019
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  NERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  HESTLER, J.     Unconventional circuits for stati     transformers     [BHFI-FB-T-78-26]  NEUBAUER, P.     Pilot scale evaluation of NOx com     for pulverized coal, phase 2     [PB-299325/1]  NEUHANN, R.     The role of coal in the world ene     the year 2000 - Reserves, resor     availability from the Western F  NEUMANN, T. W.     Design of the International Energy     distributed-collector solar the     powerplant     [ASME PAPER 79-WA/SOL-6]  NEVITT, J. S.     Unleaded gasoline shortages and of     The potential impact in Souther  NEUBLL, T.     Simulation of solar-assisted urbe	1y dwelling, 25 p0101 N80-10659  Systems for 25 p0133 N80-12962  dd decline curves geothermal field 25 p0075 A80-19204  c voltage 25 p0107 N80-11368  abustion control 25 p0180 N80-15687  ergy picture up to arces, and 25 p0040 A80-15625  gy Agency 500 kWe ermal-electric 25 p007C A80-18592  fuel switching - ar California 25 p0004 A80-11019 an sewage digestion
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  NERI, G.     Analysis of reservoir pressure and in Serrazzano zone, Larderello  HESTLER, J.     Unconventional circuits for statisticansformers     [BMFT-PB-T-78-26]  NEUBAUER, P.     Pilot scale evaluation of NOX comfor pulverized coal, phase 2     [PB-299325/1]  HEUHANN, R.     The role of coal in the world energy of the year 2000 - Reserves, resond availability from the Western F  NEUHANN, T. W.     Design of the International Energy distributed-collector solar the powerplant     [ASME PAPER 79-WA/SOL-6]  HEVITT, J. S.     Unleaded gasoline shortages and in the potential impact in Southern  NEURLL, T.     Simulation of solar-assisted urbane (ASME PAPER 79-WA/SOL-36]	1y dwelling, 25 p0101 N80-10659  systems for 25 p0133 N80-12962  dd decline curves geothermal field 25 p0075 A80-19204  c voltage 25 p0107 N80-11368  abustion control 25 p0180 N80-15687  ergy picture up to arces, and arcopean viewpoint 25 p0040 A80-15625  gy Agency 500 kWe ermal-electric 25 p007C A80-18592  fuel switching - c California 25 p0004 A80-11019
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  WERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  WESTLER, J.     Unconventional circuits for stati     transformers     [BMFT-FB-T-78-26]  WEUBAUER, P.     Pilot scale evaluation of NOx com     for pulverized coal, phase 2     [PB-299325/1]  WEUMANN, R.     The role of coal in the world ene     the year 2000 - Reserves, resor     availability from the Western F  WEUMANN, T. W.     Design of the International Energy     distributed-collector solar the     powerplant     [ASME PAPER 79-WA/SOL-6]  WEVITT, J. S.     Unleaded gasoline shortages and if     The potential impact in Souther  WEURLL, T.     Simulation of solar-assisted urbane [ASME PAPER 79-WA/SOL-36]  WEUMANN, J. N.	1y dwelling, 25 p0101 N80-10659  Systems for 25 p0133 N80-12962  dd decline curves geothermal field 25 p0075 A80-19204  c voltage 25 p0107 N80-11368  abustion control 25 p0180 N80-15687  ergy picture up to arces, and 25 p0040 A80-15625  gy Agency 500 kWe ermal-electric 25 p007C A80-18592  fuel switching - ar California 25 p0004 A80-11019 an sewage digestion
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  NERI, G.     Analysis of reservoir pressure and in Serrazzano zone, Larderello  HESTLER, J.     Unconventional circuits for statisticansformers     [BMFT-PB-T-78-26]  NEUBAUER, P.     Pilot scale evaluation of NOX comfor pulverized coal, phase 2     [PB-299325/1]  HEUHANN, R.     The role of coal in the world energy of the year 2000 - Reserves, resond availability from the Western F  NEUHANN, T. W.     Design of the International Energy distributed-collector solar the powerplant     [ASME PAPER 79-WA/SOL-6]  HEVITT, J. S.     Unleaded gasoline shortages and in the potential impact in Southern  NEURLL, T.     Simulation of solar-assisted urbane (ASME PAPER 79-WA/SOL-36]	1y dwelling, 25 p0101 N80-10659  Systems for 25 p0133 N80-12962  dd decline curves geothermal field 25 p0075 A80-19204  c voltage 25 p0107 N80-11368  abustion control 25 p0180 N80-15687  ergy picture up to arces, and 25 p0040 A80-15625  gy Agency 500 kWe ermal-electric 25 p007C A80-18592  fuel switching - c California 25 p0004 A80-11019  an sewage digestion 25 p0065 A80-18556
Solar energy system performance e     A-Frame Industries, single fami     Kaneohe, Hawaii     [SOLAR/1010-78/14]  NENE, V. D.     The status of advanced propulsion     urban rail vehicles     [PB-297980/5]  WERI, G.     Analysis of reservoir pressure an     in Serrazzano zone, Larderello  WESTLER, J.     Unconventional circuits for stati     transformers     [BMFT-FB-T-78-26]  WEUBAUER, P.     Pilot scale evaluation of NOx com     for pulverized coal, phase 2     [PB-299325/1]  WEUMANN, R.     The role of coal in the world ene     the year 2000 - Reserves, resor     availability from the Western F  WEUMANN, T. W.     Design of the International Energy     distributed-collector solar the     powerplant     [ASME PAPER 79-WA/SOL-6]  WEVITT, J. S.     Unleaded gasoline shortages and if     The potential impact in Souther  WEURLL, T.     Simulation of solar-assisted urbane [ASME PAPER 79-WA/SOL-36]  WEUMANN, J. N.	ly dwelling,  25 p0101 N80-10659  Systems for  25 p0133 N80-12962  d decline curves geothermal field 25 p0075 A80-19204  c voltage  25 p0107 N80-11368  abustion control  25 p0180 N80-15687  ergy picture up to arces, and 25 p0040 A80-15625  gy Agency 500 kWe ermal-electric  25 p007C A80-18592  fuel switching - ar California 25 p0004 A80-11019  an sewage digestion

25 p0056 A80-17846

analysis

```
Hydrogen-powered vs. battery-powered automobiles
                                                           25 p0033 A80-13199
NICHOLSON-FLORENCE, M. F.
Calculations of inertial confinement fusion gains
       using a collective model for reheat, bremsstrahlung and fuel depleticn for highly efficient electrodynamic laser compressions

25 p0058 A80-17875
NIEDZWIECKI, R. W.
Low NO(x) heavy fuel combustor program
25 p0138 N80-13624
[NASA-TH-79313] 25 p0138
BIRHI, A.
A link between science and applications of
        link between science and apprairies of the seventh automatic control; Proceedings of the Seventh Triennial World Congress, Helsinki, Finland, June 12-16, 1978. Volumes 1, 2, 3 & 4
25 p0038 A80-14794
NIESSEN, W. R.
Source, supply and nature of municipal and industrial waste as a fuel
                                                            25 p0017 A80-11983
NIHAN, N. L.
     Energy conservation - Aerodynamic drag reduction
  of intercity buses
                                                            25 p0050 A80-17227
WILSSON, T.
Utility fuel cells for Sweden
                                                            25 p0011 A80-11852
WINNO, B.
Testing of three installed solar domestic water
        heaters
                                                            25 p0025 A80-12758
     Summary on inertial-confinement fusion
                                                            25 p0059 A80-17893
     Fuel minimal take-off path of jet lift VTOL aircraft, log no. C3558
                                                            25 p0105 N80-11066
     A solar-heated water system for a photographic
        processing laboratory
                                                            25 p0041 A80-15750
     Photovoltaic concentrator application experiment.

Phase 1: A 150 kW photovoltaic concentrator
power system for load-center applications with
        feedback into the utility grid [DOE/CS-34267/1]
                                                            25 p0145 N80-13688
      Development of an accelerated test design for
         predicting the service life of the solar array
         at Mead, Nebraska
[NASA-CR-162534]
                                                            25 p0154 N80-14483
 NOETHER, G.
      Developments for the high voltage test of pulsed
         superconducting coils
                                                             25 p0081 A80-1965
     Constant current and constant voltage excitation of large coils by flywheel-generator-converter 25 p0080 A80-1962
     Economic performance - Evaluations for solar energy
25 p0014 A80-1195

A microeconomic approach to passive solar design -
Performance, cost, optimal sizing and comfort
```

fusion systems

Passive and active residential solar heat comparative economic analysis of select	designs	GURECHNIKOV, L. A. Energetics aspects of environmental prot	ection
25 p002 Economic performance of passive solar hea	1 A80-12435	BLSSON, D. 25 p00	72 A80-18733
preliminary analysis	0 N80-10645	Boundary layer analysis of cold-blanket	systems 58 A80-17877
NOLL, S. A.	0:	HTA, T.	
Energy planning with solar and conservation Individual values and community choice	ons:	Solar-hydrogen energy systems	51 A80-17573
	2 พ80-13653	Introduction - A review of the scope	52 A80-17574
Effects of metallurgical microstructure o		Thermodynamics of water-splitting	
	7 N80-13375	Photochemical hydrogen production	52 A80-17575
Preparing aircraft propulsion for a new e	ca in	Solar energy storage by metal hydride	52 A80-17579
	3 A80-17737	Direct solar energy conversion at sea	53 A80-17582
		HTAKE, K.	53 A80-17583
NORREH, D. L. Design of heat pipe cooled laser mirrors	with an	MHD boundary layer of the seeded combust near cold electrodes	ion gas
inverted meniscus evaporator wick		25 p00	47 A80-17004
[AIAA PAPER 80-0148] 25 p006 NORTH, D. W.	4 A80-18366 O	ITTO, R. H. Three potential longwall mining methods	for thick
Proposed research planning format for the		coal seams in the western United State	
	3 N80-10692 O	[PB-299568/6] 25 p01 JEFORS, L.	70 N80-15544
WORTHRUP, C. J. Closed-cycle hydride engines		Optimization of iron-air and nickel oxid traction batteries	e-iron
[SAND-78-2228] 25 p012	5 N80-12572	25 p00	11 480-11847
NOVAK, M. M. Calculations of inertial confinement fusi		KABAYASHI, M. MHD stability limits on high-beta tokama	ks
using a collective model for reheat,	_	25 p00	54 A80-17797
bremsstrahlung and fuel depletion for h efficient electrodynamic laser compress	ions	Low-aspect-ratio limit of the toroidal r The spheromak	
NOWOGBODZKI, M.	8 A80-17875	25 p00 KAZAKI, K.	58 A80-17876
Analysis of S-band solid-state transmitte the solar power satellite		MHD boundary layer of the seeded combust	ion gas
	5 N80-10600	near cold electrodes 25 p00	47 A80-17004
•	0	KE, Y. V.  Development of space quality silicon sol	ar colle
U		at B.A.R.C.	ar cerrs
OBERLE, H. J.  Numerical computation of singular control	problems 0	25 p00	25 A80-12762
Numerical computation of singular control with application to optimal heating and		25 p00 KERE, B. C. Visualization of natural convection in f	
Numerical computation of singular control with application to optimal heating and by solar energy 25 p005	cooling 1 A80-17307	Z5 p00  Wisualization of natural convection in f  solar collectors  25 p01	
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor	cooling 1	25 p00 KERE, B. C. Visualization of natural convection in f solar collectors	lat plate 53 N80-14476
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERIE, B. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal)	Cooling 1 A80-17307 Onation fuels	KEKE, B. O. Visualization of natural convection in f solar collectors  KUDA, H. Effect of finite beta on drift-wave turb particle confinement  25 p00	lat plate 53 N80-14476
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [PE-2307-38]  OBEROL, R. S.	Cooling  1 A80-17307  nation fuels  5 N80-11249  O	KERE, B. O.  Visualization of natural convection in f solar collectors  25 p01  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  25 p00  LHERT, H.  International activities: The fiscal years	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBBRILE, B. D.  Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [FE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Bo	Cooling  1 A80-17307  nation fuels  5 N80-11249  or use 3 3 N80-13668	KEKE, B. O.  Visualization of natural convection in f solar collectors  Z5 p01  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHERT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8] 25 p01	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [PE-2307-38]  OBERCI, H. S. Solar cooling performance in CSU Solar Bo [C00-2858-23]  OBERT, W. Construction and test of a high power inj	Cooling  1	KEKE, B. O.  Visualization of natural convection in f solar collectors  Effect of finite beta on drift-wave turb particle confinement  LHERT, B.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8]  LSBM, T. J.  Cost-effective control systems for solar	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [FE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Ho [C00-2858-23]  OBERT, W. Construction and test of a high power inj hydrogen cluster ions	Cooling  1 A80-17307  nation fuels  6 N80-11249  use 3 3 N80-13668  ector of  0 A80-19618	KERE, B. O.  Visualization of natural convection in f solar collectors  25 p01  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  25 p00  LHERT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8]  LSEN, T. J.  Cost-effective control systems for solar and cooling applications [SAN-1592-1]  25 p01	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, B. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [PE-2307-38]  OBERCI, B. S. Solar cooling performance in CSU Solar Bo [C00-2858-23]  OBERT, W. Construction and test of a high power inj hydrogen cluster ions  OBERIEN, F. F.	Cooling  1 A80-17307  nation fuels  5 N80-11249  or use 3 3 N80-13668 ector of  0 A80-19618	KEKE, B. O.  Visualization of natural convection in f solar collectors  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHERT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8]  LSBN, T. J.  Cost-effective control systems for solar and cooling applications [SAN-1592-1]  LSON, L.	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [PE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Ho [C00-2858-23]  Construction and test of a high power inj hydrogen cluster ions  OBERIEN, W. F. Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien	Cooling  1	KERE, B. 0.  Visualization of natural convection in f solar collectors  25 p01  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHERT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8] 25 p01  LSBN, T. J.  Cost-effective control systems for solar and cooling applications  [SAN-1592-1] 25 p01  LSON, L.  Steady-state currents driven by collision damped lower-hybrid waves	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, B. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [FE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU solar Ho [C00-2858-23]  C0BERT, W. Construction and test of a high power inj hydrogen cluster ions  OBERIEN, W. F. Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien [ASME PAPPE 79-WM/SOL-2]  25 p008	Cooling  1 A80-17307  nation fuels  5 N80-11249  or o	KEKE, B. O.  Visualization of natural convection in f solar collectors  Z5 p01  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHERT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8]  LSBN, T. J.  Cost-effective control systems for solar and cooling applications  [SAN-1592-1]  LSON, L.  Steady-state currents driven by collision damped lower-hybrid waves	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [PE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Ho [COO-2858-23]  OBERT, W. Construction and test of a high power inj hydrogen cluster ions  OBERIEN, W. F. Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien [ASME PAPEE 79-WA/SOL-2]  OCONHELL, L. G. Energy storage systems for automobile pro	Cooling  1 A80-17307  nation fuels  6 N80-11249  or use 3  3 N80-13668  extor of  0 A80-19618  e with tation  7 A80-18571	KERE, B. O.  Visualization of natural convection in f solar collectors  Z5 p01  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHERT, H.  International activities: The fiscal yesurvey of international programs at NE [PB-300491/8] 25 p01  LSEN, T. J.  Cost-effective control systems for solar and cooling applications  [SAN-1592-1] 25 p01  LSON, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSON, G. K.  Multi-use geothermal energy system with	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [FE-2307-38]  OBERCI, H. S. Solar cooling performance in CSU Solar Bo [C00-2858-23]  Construction and test of a high power inj hydrogen cluster ions  OBERIT, W. Horizontal-axis wind generator performanc varying tip speed ratio and rotor crien [ASME PAPER 79-WA/SOL-2]  OCONHELL, L. G. Energy storage systems for automobile pro 1978 study. 1: Overview and findings	Cooling  1 A80-17307  nation fuels  6 N80-11249  or use 3 3 N80-13668  exter of  0 A80-19618  e with tation 7 A80-18571  pulsion,	KEKE, B. O.  Visualization of natural convection in f solar collectors  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHERT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8]  LSBN, T. J.  Cost-effective control systems for solar and cooling applications  [SAN-1592-1]  LSON, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSONN, G. K.  Hulti-use geothermal energy system with augmentation for enhanced utilization.	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 1 81 N80-16004 heating 01 N80-10658 nally 84 A80-20157
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [FE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Bo [C00-2858-23]  OBERT, W. Construction and test of a high power inj hydrogen cluster ions  OBERTEN, W. F. Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien [ASME PAPEE 79-WA/SOL-2]  OCONHELL, L. G. Energy storage systems for automobile pro 1978 study. 1: Overview and findings [UCRL-52553-VOL-1] Energy storage system for automobile pro	Cooling  1 A80-17307  nation fuels  5 N80-11249  03 N80-13668  exter of  0 A80-19618  e with tation 7 A80-18571  pulsion,  5 N80-10970	KEKE, B. O.  Visualization of natural convection in f solar collectors  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHERT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8] 25 p01  LSEN, T. J.  Cost-effective control systems for solar and cooling applications [SAM-1592-1] 25 p01  LSON, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSON, G. K.  Multi-use geothermal energy system with augmentation for enhanced utilization. Non-electric application of geothermal Susanville, California	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658 nally 84 A80-20157 energy in
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D.  Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [PE-2307-38]  OBEROI, H. S.  Solar cooling performance in CSU Solar Bo [COO-2858-23]  Construction and test of a high power inj hydrogen cluster ions  25 p008  OBERIEN, W. P.  Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien [ASNE PAPEE 79-WA/SOL-2]  COCONNELL, L. G.  Energy storage systems for automobile pro 1978 study. 1: Overview and findings [UCRL-52553-VOL-1] Energy storage system for automobile prop 1978 study. 2: Detailed report	Cooling  1 A80-17307  nation fuels  6 N80-11249  or ase 3  3 N80-13668  exter of  0 A80-19618  e with tation 7 A80-18571  pulsion,  5 N80-10970  ulsion,	KEKE, B. O.  Visualization of natural convection in f solar collectors  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHERT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8] 25 p01  LSEN, T. J.  Cost-effective control systems for solar and cooling applications [SAM-1592-1] 25 p01  LSON, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSON, G. K.  Multi-use geothermal energy system with augmentation for enhanced utilization. Non-electric application of geothermal Susanville, California	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 1 81 N80-16004 heating 01 N80-10658 nally 84 A80-20157
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [FE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Bo [C00-2858-23]  OBERT, W. Construction and test of a high power inj hydrogen cluster ions  OBRIEN, W. F. Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien [ASME PAPEE 79-WA/SOL-2]  OCONHELL, L. G. Energy storage systems for automobile pro 1978 study. 1: Overview and findings [UCRL-52553-VOL-1] Energy storage system for automobile prop 1978 study. 2: Detailed report [UCRL-52553-VOL-2]  ODLAND, R.	cooling 1 A80-17307 nation fuels 6 N80-11249 02 use 3 3 N80-13668 02 ector of 0 A80-19618 03 04 with 05 with 06 with 07 A80-18571 08 pulsion, 05 N80-10970 ulsion, 1 N80-15995	KEKE, B. O.  Visualization of natural convection in f solar collectors  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHERT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8]  LOSH, T. J.  Cost-effective control systems for solar and cooling applications [SAM-1592-1]  LSOH, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSOHN, G. K.  Multi-use geothermal energy system with augmentation for enhanced utilization. Non-electric application of geothermal Susanville, California [DOE/ET-248447/1]  LSON, H.  Salinity gradient power - Utilizing vaporations of solutions of solutions of solutions of solutions of solutions of solutions of solutions. Solutions of	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658 nally 84 A80-20157 energy in 42 N80-13660
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [FE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Ho [C00-2858-23]  OBERT, W. Construction and test of a high power inj hydrogen cluster ions  25 p008  OBRIEN, W. P. Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien [ASME PAPEE 79-WA/SOL-2]  OCONNELL, L. G. Energy storage systems for automobile pro 1978 study- 1: Overview and findings [UCRL-52553-VOL-1] Energy storage system for automobile pro 1978 study- 2: Detailed report [UCRL-52553-VOL-2]  ODLAND, R. Implementation of state solar incentives: preliminary assessment	Cooling 1 A80-17307 nation fuels 6 N80-11249 03 3 N80-13668 ector of 0 A80-19618 e with tation 7 A80-18571 pulsion, 5 N80-10970 ulsion, 1 N80-15995 0	KEKE, B. O.  Visualization of natural convection in f solar collectors  Z5 p01  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  25 p00  LHERT, H.  International activities: The fiscal yesurvey of international programs at NE [PB-300491/8]  LSEN, T. J.  Cost-effective control systems for solar and cooling applications [SAN-1592-1]  LSON, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSON, G. K.  Hulti-use geothermal energy system with augmentation for enhanced utilization. Non-electric application of geothermal Susanville, California [DOE/ET-248447/1]  LSSON, M.  Salinity gradient power - Utilizing vapor differences	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658 nally 84 A80-20157 energy in 42 N80-13660
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [PE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Ho [C00-2858-23]  OBERT, W. Construction and test of a high power inj hydrogen cluster ions  25 p008  OBERIEN, W. F. Horizontal-axis wind generator performanc varying tip speed ratio and rotor crien [ASME PAPER 79-WA/SOL-2]  OCONHELL, L. G. Energy storage systems for automobile pro 1978 study. 1: Overview and findings [UCRL-52553-VOL-1] Energy storage system for automobile pro 1978 study. 2: Detailed report [UCRL-52553-VOL-2]  ODLAND, R. Implementation of state solar incentives: preliminary assessment [SERI/TR-51-159]  OETTIBEER, F. F.	Cooling 1 A80-17307 nation fuels 6 N80-11249 03 3 N80-13668 ector of 0 A80-19618 e with tation 7 A80-18571 pulsion, 5 N80-10970 ulsion, 1 N80-15995 0	KEKE, B. O.  Visualization of natural convection in f solar collectors  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  25 p00  LIMERT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8]  LSBN, T. J.  Cost-effective control systems for solar and cooling applications  [SAN-1592-1]  LSON, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSONN, G. K.  Multi-use geothermal energy system with augmentation for enhanced utilization. Non-electric application of geothermal Susanville, California [DOF/ET-248447/1]  LSSON, M.  Salinity gradient power - Utilizing vapor differences  25 p00  LSZEWSKI, M.  Analysis of potential implementation lev	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658 nally 84 A80-20157 energy in 42 N80-13660 r pressure 03 A80-10524 els for
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [FE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Bo [C00-2858-23]  OBERT, W. Construction and test of a high power inj hydrogen cluster ions  OBELEN, W. P. Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien [ASME PAPEE 79-WA/SOL-2]  OCONNELL, L. G. Energy storage systems for automobile pro 1978 study. 1: Overview and findings [UCBL-5253-VOL-1] Energy storage system for automobile pro 1978 study. 2: Detailed report [UCBL-5253-VOL-2]  ODLAND, R. Implementation of state solar incentives: preliminary assessment [SERI/TR-51-159]  OETTINGER, F. F. Measurement techniques for high-power semiconductor materials and devices:	Cooling 1 A80-17307 nation fuels 6 N80-11249 02 use 3 3 N80-13668 03 ector of 0 A80-19618 04 ewith tation 7 A80-18571 pulsion, 5 N80-10970 ulsion, 1 N80-15995 0 A 8 N80-14520 0	KEKE, B. O.  Visualization of natural convection in f solar collectors  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHERT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8] 25 p01  LSEN, T. J.  Cost-effective control systems for solar and cooling applications [SAM-1592-1] 25 p01  LSOH, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSOHN, G. K.  Multi-use geothermal energy system with augmentation for enhanced utilization. Non-electric application of geothermal Susanville, California [DOE/ET-248447/1] 25 p01  LSON, H.  Salinity gradient power - Utilizing vapor differences  LSZEWSKI, H.	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658 nally 84 A80-20157 energy in 42 N80-13660 r pressure 03 A80-10524 els for
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [PE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Bo [C00-2858-23]  Construction and test of a high power inj hydrogen cluster ions  OBERIT, W. Construction and test of a high power inj hydrogen cluster ions  OBERIEN, W. F. Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien [ASME PAPER 79-WA/SOL-2]  OCONHELL, L. G. Energy storage systems for automobile pro 1978 study. 1: Overview and findings [UCRL-52553-VOL-1] Energy storage system for automobile pro 1978 study. 2: Detailed report [UCRL-52553-VOL-2]  ODLAND, R. Implementation of state solar incentives: preliminary assessment [SERI/TR-51-159]  OETIINGER, F. F. Heasurement techniques for high-power semiconductor materials and devices: [PB-298574/5]  25 p012	Cooling 1 A80-17307 nation fuels 6 N80-11249 03 ase 3 3 N80-13668 ector of 0 A80-19618 e with tation 7 A80-18571 pulsion, 5 N80-10970 ulsion, 1 N80-15995 03 8 N80-14520 03 1 N80-12300	KEKE, B. O.  Visualization of natural convection in f solar collectors  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHRRT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8]  LSBN, T. J.  Cost-effective control systems for solar and cooling applications  [SAN-1592-1]  LSOH, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSOHN, G. K.  Hulti-use geothermal energy system with augmentation for enhanced utilization. Non-electric application of geothermal Susanville, California  [DOF/ET-248447/1]  LSSON, M.  Salinity gradient power - Utilizing vapor differences  25 p00  LSZEWSKI, H.  Analysis of potential implementation levwaste heat utilization in the nuclear industry  [CRNL/TN-63-2]  25 p01	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658 nally 84 A80-20157 energy in 42 N80-13660 r pressure 03 A80-10524 els for
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [FE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Ho [C00-2858-23]  OBERT, W. Construction and test of a high power inj hydrogen cluster ions  OBRIEN, F. Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien [ASME PAPEE 79-WA/SOL-2]  OCONNEELL, L. G. Energy storage systems for automobile pro 1978 study. 1: Overview and findings [UCRL-52553-VOL-1] 25 p010  Energy storage system for automobile prop 1978 study. 2: Detailed report [UCRL-52553-VOL-2]  ODLAND, R. Implementation of state solar incentives: preliminary assessment [SERI/TR-51-159]  OETTIBEER, F. F. Measurement techniques for high-power semiconductor materials and devices: [PB-298574/5]  OFFEEHARTZ, P. O'D. Development of silver-hydrogen cells	Cooling 1 A80-17307 nation fuels 6 N80-11249 02 ase 3 3 N80-13668 ector of 0 A80-19618 e with tation 7 A80-18571 pulsion, 5 N80-10970 ulsion, 1 N80-15995 A 8 N80-14520 01 1 N80-12300	KEKE, B. O.  Visualization of natural convection in f solar collectors  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHERT, M.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8]  Cost-effective control systems for solar and cooling applications  [SAM-1592-1]  LSOH, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSOHN, G. K.  Multi-use geothermal energy system with augmentation for enhanced utilization. Non-electric application of geothermal Susanville, California  [DOE/ET-248447/1]  LSSON, M.  Salinity gradient power - Utilizing vapor differences  LSZEWSKI, M.  Analysis of potential implementation levwaste heat utilization in the nuclear industry  [CRNL/TB-63-2]  LVERA, A.  Design, evaluation, and testing of a model	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658 nally 84 A80-20157 energy in 42 N80-13660 r pressure 03 A80-10524 els for power 77 N80-15625 erately
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [PE-2307-38] 25 p010  OBERIOI, H. S. Solar cooling performance in CSU Solar Bo [C00-2858-23] 25 p014  OBERT, W. Construction and test of a high power inj hydrogen cluster ions 25 p008  OBRIEN, W. F. Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien [ASME PAPER 79-WA/SOL-2] 25 p006  OCONHELL, L. G. Energy storage systems for automobile pro 1978 study. 1: Overview and findings [UCRL-52553-VOL-1] Energy storage system for automobile pro 1978 study. 2: Detailed report [UCRL-52553-VOL-2]  ODLAND, R. Implementation of state solar incentives: preliminary assessment [SERI/TR-51-159]  OETIINGER, F. F. Heasurement techniques for high-power semiconductor materials and devices: [PB-298574/5]  OFFERHARTZ, P. 0*D. Development of silver-hydrogen cells	Cooling 1 A80-17307 nation fuels 6 N80-11249 03 ase 3 3 N80-13668 ector of 0 A80-19618 e with tation 7 A80-18571 pulsion, 5 N80-10970 ulsion, 1 N80-15995 03 8 N80-14520 03 1 N80-12300	KEKE, B. O.  Visualization of natural convection in f solar collectors  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHRRT, H.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8]  LSBN, T. J.  Cost-effective control systems for solar and cooling applications  [SAN-1592-1]  LSON, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSON, G. K.  Multi-use geothermal energy system with augmentation for enhanced utilization. Non-electric application of geothermal Susanville, California  [DOF/ET-248447/1]  LSSON, M.  Salinity gradient power - Utilizing vapor differences  25 p00  LSZEWSKI, H.  Analysis of potential implementation lev waste heat utilization in the nuclear industry  [CRNL/TN-63-2]  LVERA, A.  Design, evaluation, and testing of a mod concentrating, non-tracking solar energy.	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658 nally 84 A80-20157 energy in 42 N80-13660 r pressure 03 A80-10524 els for power 77 N80-15625 erately gy collector
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [FE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Bo [C00-2858-23]  OBERT, W. Construction and test of a high power inj hydrogen cluster ions  OBELEN, W. P. Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien [ASME PAPEE 79-WA/SOL-2]  OCONNEELL, L. G. Energy storage systems for automobile pro 1978 study. 1: Overview and findings [UCRL-5253-VOL-1] Energy storage system for automobile pro 1978 study. 2: Detailed report [UCRL-5253-VOL-2]  ODLAND, R. Implementation of state solar incentives: preliminary assessment [SERI/TR-51-159]  OETTINGER, F. F. Measurement techniques for high-power semiconductor materials and devices: [PB-298574/5]  OFFERHARTZ, P. O*D. Development of silver-hydrogen cells 25 p001  OGASAWARA, S. Water splitting reaction on a polynaphtho	Cooling 1 A80-17307 nation fuels 6 N80-11249 02 1388 3 3 N80-13668 03 14 N80-19618 04 15 N80-19618 05 N80-18571 06 N80-18571 07 A80-18571 08 N80-10970 08 N80-15995 09 A80-14520 09 A80-14520 09 A80-11843 09 On A80-11843	KEKE, B. O.  Visualization of natural convection in f solar collectors  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  LHERT, M.  International activities: The fiscal ye survey of international programs at NE [PB-300491/8]  LOST, T. J.  Cost-effective control systems for solar and cooling applications  [SAM-1592-1]  LSOH, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSOHN, G. K.  Multi-use geothermal energy system with augmentation for enhanced utilization. Non-electric application of geothermal Susanville, California  [DOE/ET-248447/1]  LSSON, M.  Salinity gradient power - Utilizing vapor differences  LSZEWSKI, M.  Analysis of potential implementation levwaste heat utilization in the nuclear industry  [CRNL/TM-63-2]  LVERA, A.  Design, evaluation, and testing of a mod concentrating, non-tracking solar energation in the concentrating, non-tracking solar energation. Second	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658 nally 84 A80-20157 energy in 42 N80-13660 r pressure 03 A80-10524 els for power 77 N80-15625 erately
Numerical computation of singular control with application to optimal heating and by solar energy  25 p005  OBERLE, R. D. Research and development of rapid hydroge for coal conversion to synthetic motor (riser cracking of coal) [FE-2307-38]  OBEROI, H. S. Solar cooling performance in CSU Solar Ho [C00-2858-23]  OBERT, W. Construction and test of a high power inj hydrogen cluster ions  25 p008  OBRIEN, W. P. Horizontal-axis wind generator performanc varying tip speed ratio and rotor orien [ASME PAPEE 79-WA/SOL-2]  OCONNELL, L. G. Energy storage systems for automobile pro 1978 study. 1: Overview and findings [UCRL-52553-VOL-1] Energy storage system for automobile pro 1978 study. 2: Detailed report [UCRL-52553-VOL-2]  ODLAND, R. Implementation of state solar incentives: preliminary assessment [SERI/TR-51-159]  OETTINGER, F. F. Heasurement techniques for high-power semiconductor materials and devices: [PB-298574/5]  OFFERHARTZ, P. O'D. Development of silver-hydrogen cells 25 p001  OGASAWARA, S.	Cooling 1 A80-17307 nation fuels 6 N80-11249 02 1388 3 3 N80-13668 03 14 N80-19618 04 15 N80-19618 05 N80-18571 06 N80-18571 07 A80-18571 08 N80-10970 08 N80-15995 09 A80-14520 09 A80-14520 09 A80-11843 09 On A80-11843	KEKE, B. O.  Visualization of natural convection in f solar collectors  KUDA, H.  Effect of finite beta on drift-wave turb particle confinement  25 p00  LHRRT, H.  International activities: The fiscal yesurvey of international programs at NE [PB-300491/8]  LSBN, T. J.  Cost-effective control systems for solar and cooling applications  [SAN-1592-1]  LSON, L.  Steady-state currents driven by collision damped lower-hybrid waves  LSONN, G. K.  Hulti-use geothermal energy system with augmentation for enhanced utilization. Non-electric application of geothermal Susanville, California  [DOF/ET-248447/1]  LSSON, M.  Salinity gradient power - Utilizing vapor differences  25 p00  LSZEWSKI, H.  Analysis of potential implementation levwaste heat utilization in the nuclear industry  [CRNL/TB-63-2]  LVERA, A.  Design, evaluation, and testing of a mod concentrating, non-tracking solar ener.  [ASNE PAPER 79-WA/SOL-3]  25 p00  Solar energy storage by metal hydride	lat plate 53 N80-14476 ulence and 84 A80-20158 ar 1978 L 81 N80-16004 heating 01 N80-10658 nally 84 A80-20157 energy in 42 N80-13660 r pressure 03 A80-10524 els for power 77 N80-15625 erately gy collector

## PERSONAL AUTHOR INDEX

25 p0036 A80-14596

ONYEOGU, O. E.	OWEN, L. B.
Measurement of insolation using CdS photoresistor	Using surface waters for supplementing injection
25 p0047 A80-16998 OPAR, T.	at the Salton Sea Geothermal Field (SSGF), Southern California
Integral modeling of MHD channel boundary layers	[UCRL-83011] 25 p0124 N80-12561
[AIAA PAPEE 80-0175] 25 p0064 A80-18353 OPDICEE, G. L.	OWEN, L. W. The Elmo Bumpy Torus /EET/ reactor
Determination of the technical and economic	25 p0058 A80-17883
feasibility of luminescent solar concentrators [SAND-79-7005] 25 p010C N80-10650	OWERS, H.
[SAND-79-7005] 25 p010C N80-10650 ORBACH, A.	150-kV, 80-A solid state power supply for neutral beam injection
Optimal control of distributed parameter systems	25 p0080 A80-19617
for solar thermal applications 25 p0095 N80-10593	OZAWA, Y. Simplified theory of nonuniform electrical
ORCHARD, A. F.	conduction for an open cycle MBD generator with
Thionine coated electrode for photogalvanic cells 25 p0051 A80-17343	shaped magnetic induction 25 p0047 A80-16997
ORIORDAH, T.	
The scope of environmental risk management 25 p0053 A80-17743	P
ORLOV, H. H.	PADDISON, P. C.
Principles of plasma heating and confinement in a	Geothermal energy markets on the Atlantic coastal
compact toroidal configuration 25 p0055 A80-17822	plain 25 p0016 A80-11978
ORLOV, V. V.	PALM, B. J.
Concept of tokamak-type reactor with high-temperature blanket	Calculated and measured efficiencies of thin-film shallow-homojunction GaAs solar cells on Ge
25 p0059 A80-17885	substrates
OBTEZ-VELEZ, J. Production of sugarcane and tropical grasses as a	25 p0039 A80-15141
renewable energy source	PALMITER, L.  Energy planning with solar and conservations:
[DOE/CS/5912-T1] 25 p0168 N80-15277	Individual values and community choice
ORTOLABI, S. Studies on plasma formation, relaxation and	[LA-UR-79-1599] 25 p0 142 N80-13653 PAN, YC.
heating in a reversed-field pinch	Power take-off analysis for diagonally connected
25 p0054 A80-17811 OSBORN, D. B.	MHD channels [AIAA PAPER 80-0253] 25 p0077 A80-19309
The thermal design and analysis of an integrated	PANDB, P. C.
sodium boiler/receiver for solar energy conversion	Effect of boosters on the performance of flat
[ASME PAPER 79-WA/SOL-10] 25 p0067 A80-18569 OSHER, J. E.	plate collector 25 p0023 <b>1</b> 80-12744
Diagnostics for mirror machines	Review of thermal storage materials from the view
25 p0045 A80-16720 OSTER, J. R.	point of solar energy application 25 p0025 A80-12756
Residential photovoltaic module and array	PARDOR, G. K. C.
requirements study, appendices [NASA-CR-162529] 25 p0154 N80-14481	Cost effectiveness requirements for space power stations
Residential photovoltaic module and array	25 p0073 A80-18800
requirements study [NASA-CR-162528] 25 p0154 N80-14482	PARK, W. Biomass-based alcohol fuels: The near-term
OSTERLE, F.	potential for use with gasoline
A simplified procedure for performance of solar systems with heat pumps	[HCP/T4101-03] 25 p0093 N80-10393 PARK, W. C.
[ASME PAPER 79-WA/SOL-23] 25 p0065 A80-18555	Mineral Changes during oil shale retorting
OTSUKI, H. H.	25 g0085 A80-20455
Process design and economic analysis of the zinc selenide thermochemical hydrogen cycle	PARKER, R.  Effects of conditioning agents on emissions from
[UCRL-52546] 25 p0164 N80-14571	coal-fired boilers: Test report no. 1
OTTO, C. E., JR. On-line tests of organic additives for the	[PB-299191/7] 25 p0165 N80-14590 Effects of conditioning agents on emissions from
inhibition of the precipitation of silica from	coal-fired boilers: Test report no. 2
hypersaline geothermal brine. 2: Tests of nitrogen-containing compounds, silanes, and	[PB-299192/5] 25 p0165 N80-14591 PARKER, W. L.
additional ethoxylated compounds	Environmental data for energy technology policy
[UCID-18195] 25 p0110 N80-11567 OUCHI, K.	analysis. Volume 1: Summary
Activity tests of various catalysts for	[HCP/EV6119-1] 25 p0098 N80-10629 PARKHURST, M. A.
hydrocracking of coal by means of high pressure	Assessment of synfuel transportation to year 2000
differential thermal analysis 25 p0019 A80-12244	[PNL-2768] 25 p0092 N80-10382 PARKINSON, B. W.
OVAKINIAN, R. N.	RAPAD - Beal-time Accurate Performance Analysis of
Stability of a system of coaxial superconducting shells	Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565
25 p0018 A80-12027	PARKS, P. C.
OVCHIBBIROV, V. L. Induced fields in the motion of a conducting	On the basic dynamics of extracting power from waves 25 p0038 A80-14837
medium in the field of an air-core magnetic system	PARTRIDGE, J. E.
25 p0061 A80-18138 OVERBEY, W. K.	The design of a thin walled toroidal vacuum
Gas recovery from unconventional sources	chamber for a large RFP experiment 25 p0082 A80-19676
25 p0014 A80-11958	PARUNGO, P. P.
OVSIABBLEOV, G. A. Effect of microwave radiation on the	Meteorological effects of oil refinery operations in Los Angeles
voltage-current characteristics of a	[PB-300720/0] 25 p0180 N80-15758
variable-thickness Josephson microbridge 25 p0035 A80-14430	PASICHNYI, V. V.  Development of optical waveguides for a
20 posso 200 14430	power-related application

PERSONAL AUTHOR INDEX PETERSON, J. R.

PASSHAN, R.	2	PELLINEN, D. G.	
Commercialization task force for l gasification	nigh Btu	Megavolt and megampere diagnostic pulsed power particle beam fusi	
[TID-28849] "	25 p0135 N80-13286		25 p0046 A80-16745
PASTIRIK, E. H.		PENDERGRASS, J. H.	
The automated array assembly task silicon solar array project, pha		Process design of the LASL bismut thermochemical hydrogen cycle	h sulfate
[NASA-CR-162429]	25 p0109 N80-11562	[LA-UR-79-1256]	25 p0129 N80-12605
PATOU, C.		Synfuel (hydrogen) production fro	
Work on laser interaction and impl d'Etudes de Limeil	losion at Centre	[LA-UR-79-1115] PENG, YK. M.	25 p0136 N80-13296
	25 p0057 A80-17863	High-beta tokamaks	
PATTERSON, G. N.		57776 5 7	25 p0054 A80-17789
The future role of hydrogen fuel is society	in an electrical	PENKO, P. P. NASA-Lewis closed-cycle magnetohy	drodynamics plant
	25 p0119 N80-12189	analysis	aroul namico ' branc
PATTERSON, R. G.		[NASA-TM-79249]	25 p0095 N80-10595
Effects of conditioning agents on coal-fired boilers: Test report		PRNNER, P. S. Gasohol - Does it or doesn't it p	roduce positive
	25 p0165 N80-14590	net energy	Totalog Foresto
Effects of conditioning agents on		N b-b-13 1071 (-1	25 p0034 A80-13863
coal-fired boilers: Test report [PB-299192/5]	25 p0165 N80-14591	New hybrid 1971 energy intensitie [COO-4628-4-PT-1]	25 p0158 N80-14516
PAUL, J. K.	25 pt 105 met 11451	PEPIN, H.	F
Ethyl alcohol production and use a		Evidence of nonlinear processes f	
PAUWELS, H. J.	25 p0050 A80-17241	of CO2 laser-irradiated targets	25 p0046 A80-16776
Analysis and evaluation of isotype	e heterojunction	PERCHE, P.	23 p0040 800 10770
solar cells		Utilization of transition metal p	
PAVELESCU, H.	25 p0087 A80-20734	trisulphides as battery cathode	s 25 p0012 A80-11858
A mathematical model for a future	hydrogen power	PERCHERMBIER, J.	23 POUIZ MOU-11036
system		Investigations of isotope separat	ion effects of a
PAWELSKI, M. J.	25 p0001 A80-10223	Ti-fluidized bed	25 p0082 A80-19669
Comparisons of measured and simula	ated performance	PERCHERON-GUEGAN, A.	23 poud2 Rdu-13063
for CSU Solar House I		Hydrogen /Hydride/-air secondary	
[ASME PAPER 79-WA/SOL-35] PAYNE, H. M.	25 p0070 A80-18590	Thermodynamic and structural prop	25 p0011 A80-11848
MDAC/Rocketdyne solar receiver:	Design review	LaNi/5-y/Aly compounds and thei	
[SAND-78-8188]	25 p0097 N80-10616		25 p0033 A80-13200
PEARCE, J. Testing of three installed solar	lomestic water	PERRIMAN, L. J. Implementation of state solar inc	
restrug of three installed solar of			
heaters			entives: A
heaters	25 p0025 A80-12758	preliminary assessment [SERI/TB-51-159]	25 p0158 N80-14520
PEARCE, L.	25 p0025 A80-12758	preliminary assessment [SEBI/TE-51-159] PREKIES, E. B.	25 p0158 N80-14520
PEARCE, L. The electrochemical characteristic	25 p0025 A80-12758	preliminary assessment [SERI/TR-51-159] PRERIMS, R. B. Recent progress in inertial confi	25 p0158 N80-14520
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt ele	25 p0025 A80-12758	preliminary assessment [SERI/TE-51-159] PERKINS, R. B. Recent progress in inertial confi research at the Los Alamos Scie	25 p0158 N80-14520
PEARCE, L. The electrochemical characteristic sulphide in immobilized salt eleptarce, L. J.	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862	preliminary assessment [SERI/TR-51-159] PREKINS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie PERRA, J. J.	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical substitution in the substitution of the substitution in the substitution of the substitution of the substitution in the substitution of the substitution o	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862	preliminary assessment [SERI/TR-51-159] PREKINS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie PERRA, J. J. A manual for cataloging and index	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents
PEARCE, L. The electrochemical characteristic sulphide in immobilized salt electrockers.  PEARCE, L. J. Recent advances in high temperatural lithium batteries	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862	preliminary assessment [SERI/TR-51-159]  PREKINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P.	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946
PEARCE, L. The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristics salt electrochemical characteristics salt electrochemical characteristics salt electrochemical	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863	preliminary assessment [SERI/TR-51-159]  PREKINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [IBL-4432-REV-1]  PERROUD, P.  Hydrogen storage by means of reve	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristics salt electrochemical characteristics salt electrochemical salt electroch	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic	preliminary assessment [SERI/TR-51-159]  PREKINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P.	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristics all electrochemical characteristics all electrochemical characteristics all electrochemical characteristics all electrochemical salt el	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic	preliminary assessment [SERI/TR-51-159]  PREKINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P.  Hydrogen storage by means of revealloy  PERRY, C. W.	25 p0158 N80-14520  nement fusion ntific Laboratory 25 p0056 A80-17862  ing documents 25 p0118 N80-11946  rsible magnesium 25 p0041 A80-15990
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical salternative salt electrochemical salt electrochemical salt electro	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength	preliminary assessment [SERI/TR-51-159]  PERKIMS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J. A manual for cataloging and index [LBL-4422-REV-1]  PERROUD, P. Hydrogen storage by means of revealloy  PERRY, C. M. Naturally occuring carbon dioxide	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristics all electrochemical characteristics all electrochemical characteristics all electrochemical characteristics all electrochemical salt el	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic	preliminary assessment [SERI/TR-51-159]  PREKINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P.  Hydrogen storage by means of revealloy  PERRY, C. W.	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and
PEARCE, L. The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical formulation for high temperatural lithium batteries  PEARMAIN, A. J. Partial discharge performance of insulation for superconducting transmission cables and the dies of supercritical helium gas [BNI-24779]  PEARSON, G. L. Preparation and properties of	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength 25 p017C N80-15346	preliminary assessment [SERI/TR-51-159]  PERKIMS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J. A manual for cataloging and index [IBL-4432-REV-1]  PERROUD, P. Hydrogen storage by means of revealloy  PERRY, C. M. Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of deproducing carbon dioxide for us	25 p0158 N80-14520  nement fusion ntific Laboratory 25 p0056 A80-17862  ing documents 25 p0118 N80-11946  rsible magnesium 25 p0041 A80-15990  sources in the aisal and rilling and
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical discharge performance of insulation for superconducting transmission cables and the dies of supercritical helium gas [BNL-24779] PEARSOH, G. L. Preparation and properties of Au-/n/Alkgai-x&s-/n/Ga&s Schotti	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength 25 p017C N80-15346	preliminary assessment [SERI/TR-51-159]  PREKINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P.  Hydrogen storage by means of revealloy  PERRY, C. W.  Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of d producing carbon dioxide for us recovery	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil
PEARCE, L. The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical formulation for high temperatural lithium batteries  PEARMAIN, A. J. Partial discharge performance of insulation for superconducting transmission cables and the dies of supercritical helium gas [BNI-24779]  PEARSON, G. L. Preparation and properties of	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength 25 p017C N80-15346 ky barrier solar	preliminary assessment [SERI/TR-51-159]  PRERINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P.  Hydrogen storage by means of revealloy  PERRY, C. H.  Naturally occuring carbon dioxide United States. A geologic appresonomic sensitivity study of deproducing carbon dioxide for us recovery [FF-2025-38]	25 p0158 N80-14520  nement fusion ntific Laboratory 25 p0056 A80-17862  ing documents 25 p0118 N80-11946  rsible magnesium 25 p0041 A80-15990  sources in the aisal and rilling and
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical and the manufaction for superconducting insulation for superconducting itransmission cables and the dielectrochemical helium gas [BNL-24779]  PEARSON, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSON, H. J.	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength 25 p017C M80-15346 ky barrier solar 25 p0086 A80-20716	preliminary assessment [SERI/TB-51-159]  PREKINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P.  Hydrogen storage by means of revealloy  alloy  PERRY, C. W.  Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of deproducing carbon dioxide for us recovery [FR-2025-38]  PERRY, R. T.  Fuel production characteristics o	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristics.  PEARCE, L. J.  Recent advances in high temperatural inthium batteries  PEARMAIN, A. J.  Partial discharge performance of insulation for superconducting transmission cables and the dies of supercritical helium gas [BNL-24779]  PEARSOH, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSOH, M. J.  Western energy sulfate/nitrate moderates.	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength 25 p017C N80-15346 ky barrier solar 25 p0086 A80-20716 mitoring network	preliminary assessment [SERI/TR-51-159]  PERKIMS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J. A manual for cataloging and index [IBI-4422-REV-1]  PERROUD, P. Hydrogen storage by means of revealloy  PERRY, C. M. Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of d producing carbon dioxide for us recovery [FE-2025-38]  PERRY, R. T.	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion bybrid
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical insulation for superconducting transmission cables and the dietrof supercritical helium gas [BNI-24779]  PEARSOH, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSOH, M. J.  Western energy sulfate/nitrate most [PB-299238/6]	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength 25 p017C M80-15346 ky barrier solar 25 p0086 A80-20716	preliminary assessment [SERI/TR-51-159]  PERKIMS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J. A manual for cataloging and index [IBI-4422-REV-1]  PERROUD, P. Hydrogen storage by means of revealloy  PERRY, C. M. Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of d producing carbon dioxide for us recovery [FE-2025-38]  PERRY, R. T. Fuel production characteristics o reactors	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristics.  PEARCE, L. J.  Recent advances in high temperatural lithium batteries  PEARMAIN, A. J.  Partial discharge performance of insulation for superconducting transmission cables and the dies of supercritical helium gas [BNL-24779]  PEARSOH, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSOH, M. J.  Western energy sulfate/nitrate most [PB-299238/6]  PEARTEEE, R. J.  Demonstration of a nitrogen based	25 p0025 A80-12758  cs of iron ectrolytes 25 p0013 A80-11862  re primary 25 p0013 A80-11863  lapped plastic power lectric strength 25 p017C M80-15346  ky barrier solar 25 p0086 A80-20716  mitoring network 25 p0180 N80-15685  carburizing	preliminary assessment [SERI/TR-51-159]  PREKINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P.  Hydrogen storage by means of revealloy  alloy  PERRY, C. W.  Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of d producing carbon dioxide for us recovery [FE-2025-38]  PERRY, R. T.  Fuel production characteristics o reactors  PESCHKA, W.  Hydrogen storage by use of cryoad	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion bybrid 25 p0059 A80-17888
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic salt electrochemical discharge performance of insulation for superconducting transmission cables and the diecof supercritical helium gas [BNI-24779]  PEARSOH, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSOH, H. J.  Western energy sulfate/nitrate moderates performed by the substitution of a nitrogen based atmosphere: Energy consumption	25 p0025 A80-12758  cs of iron ectrolytes 25 p0013 A80-11862  re primary 25 p0013 A80-11863  lapped plastic power lectric strength 25 p017C M80-15346  ky barrier solar 25 p0086 A80-20716  mitoring network 25 p0180 N80-15685  carburizing	preliminary assessment [SERI/TR-51-159]  PREKINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [IBL-4432-REV-1]  PERROUD, P.  Hydrogen storage by means of revealloy  alloy  PERRY, C. W.  Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of d producing carbon dioxide for us recovery [FR-2025-38]  PERRY, R. T.  Fuel production characteristics o reactors  PESCHKA, W.	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 if fusion hybrid 25 p0059 A80-17888 sorbents in
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristics.  PEARCE, L. J.  Recent advances in high temperatural distriction in high temperatural inthium batteries.  PEARMAIN, A. J.  Partial discharge performance of insulation for superconducting transmission cables and the dies of supercritical helium gas [BNL-24779]  PEARSON, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSON, H. J.  Western energy sulfate/nitrate most performance of a nitrogen based atmosphere: Energy consumption endothermic generator	25 p0025 A80-12758  cs of iron ectrolytes 25 p0013 A80-11862  re primary 25 p0013 A80-11863  lapped plastic power lectric strength 25 p017C M80-15346  ky barrier solar 25 p0086 A80-20716  mitoring network 25 p0180 N80-15685  carburizing	preliminary assessment [SERI/TR-51-159]  PREKINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P.  Hydrogen storage by means of revealloy  alloy  PERRY, C. W.  Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of d producing carbon dioxide for us recovery [FE-2025-38]  PERRY, R. T.  Fuel production characteristics o reactors  PESCHKA, W.  Hydrogen storage by use of cryoad	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion bybrid 25 p0059 A80-17888
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide salt electrochemical characteristic substitution for superconducting transmission cables and the dies of supercritical helium gas [BNI-24779]  PRAISON, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSON, M. J.  Western energy sulfate/nitrate most [PB-299238/6]  PEARTREE, R. J.  Demonstration of a nitrogen based atmosphere: Energy consumption endothermic generator [CONS/5058-T1]  PEDRAM, E.	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength 25 p017C N80-15346 ky barrier solar 25 p0086 A80-20716 nitoring network 25 p0180 N80-15685 carburizing of the 25 p0173 N80-15591	preliminary assessment [SERI/TR-51-159]  PBERKIMS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie  PBERRA, J. J. A manual for cataloging and index [IBI-4432-REV-1]  PBERROUD, P. Hydrogen storage by means of revealloy  PBERRY, C. M. Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of deproducing carbon dioxide for us recovery [FE-2025-38]  PBERRY, R. T. Fuel production characteristics or reactors  PBSCHKA, W. Hydrogen storage by use of cryoad comparison to alternatives  PBTERS, H. M. Proceedings of the 1978 Coal Chem	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 if fusion hybrid 25 p0059 A80-17888 sorbents in 25 p0042 A80-15992 istry Workshop
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristics.  PEARCE, L. J.  Recent advances in high temperatural inthium batteries  PEARMAIN, A. J.  Partial discharge performance of insulation for superconducting transmission cables and the dierof supercritical helium gas [BNL-24779]  PEARSON, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSON, H. J.  Western energy sulfate/nitrate moderater energy sulfate/nitrate moderateries. B. J.  Demonstration of a nitrogen based atmosphere: Energy consumption endothermic generator [CONS/5058-T1]  PEDRAIR, E.  Adsorption of hydrogen sulfide in	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength 25 p017C N80-15346 ky barrier solar 25 p0086 A80-20716 nitoring network 25 p0180 N80-15685 carburizing of the 25 p0173 N80-15591	preliminary assessment [SERI/TB-51-159]  PREKINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P.  Hydrogen storage by means of revealloy  PERRY, C. W.  Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of d producing carbon dioxide for us recovery [FR-2025-38]  PERRY, R. T.  Fuel production characteristics or reactors  PESCHKA, W.  Hydrogen storage by use of cryoad comparison to alternatives  PETERS, H. M.  Proceedings of the 1978 Coal Chem [CONF-780372]	nement fusion intific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion hybrid 25 p0059 A80-17888 sorbents in 25 p0042 A80-15992
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide salt electrochemical characteristic substitution for superconducting transmission cables and the dies of supercritical helium gas [BNI-24779]  PRAISON, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSON, M. J.  Western energy sulfate/nitrate most [PB-299238/6]  PEARTREE, R. J.  Demonstration of a nitrogen based atmosphere: Energy consumption endothermic generator [CONS/5058-T1]  PEDRAM, E.	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength 25 p017C N80-15346 ky barrier solar 25 p0086 A80-20716 nitoring network 25 p0180 N80-15685 carburizing of the 25 p0173 N80-15591	preliminary assessment [SERI/TR-51-159]  PBERKIMS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie  PBERRA, J. J. A manual for cataloging and index [IBI-4432-REV-1]  PBERROUD, P. Hydrogen storage by means of revealloy  PBERRY, C. M. Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of deproducing carbon dioxide for us recovery [FE-2025-38]  PBERRY, R. T. Fuel production characteristics or reactors  PBSCHKA, W. Hydrogen storage by use of cryoad comparison to alternatives  PBTERS, H. M. Proceedings of the 1978 Coal Chem	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion hybrid 25 p0059 A80-17888 sorbents in 25 p0042 A80-15992 istry Workshop 25 p0150 N80-14264
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic lithium batteries  PEARMAIN, A. J.  Partial discharge performance of insulation for superconducting transmission cables and the die of supercritical helium gas [BNL-24779]  PEARSON, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSON, H. J.  Western energy sulfate/nitrate moderater energy sulfate/nitrate moderater energy consumption endothermic generator [CONS/5058-T1]  PEDRAM, E.  Adsorption of hydrogen sulfide in in an inert atmosphere	25 p0025 A80-12758  cs of iron ectrolytes 25 p0013 A80-11862  re primary  25 p0013 A80-11863  lapped plastic power lectric strength  25 p017C N80-15346  ky barrier solar  25 p0086 A80-20716  mitoring network 25 p0180 N80-15685  carburizing of the  25 p0173 N80-15591  shale retorted  25 p0085 A80-20454	preliminary assessment [SERI/TB-51-159]  PRERIMS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P.  Hydrogen storage by means of revealloy  alloy  PERRY, C. W.  Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of deproducing carbon dioxide for us recovery [FE-2025-38]  PERRY, R. T.  Fuel production characteristics or reactors  PESCHKA, W.  Hydrogen storage by use of cryoad comparison to alternatives  PETERS, H. M.  Proceedings of the 1978 Coal Chem [CONF-780372]  PETERS, R. R.  Graphical representation of TMY savailability for one- and two-a	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 if fusion hybrid 25 p0059 A80-17888 sorbents in 25 p0042 A80-15992 istry Workshop 25 p0150 N80-14264 olar radiation
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrockers.  PEARCE, L. J.  Recent advances in high temperatural lithium batteries  PEARMAIN, A. J.  Partial discharge performance of insulation for superconducting transmission cables and the dies of supercritical helium gas [BNL-24779]  PEARSON, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSON, M. J.  Western energy sulfate/nitrate most [PB-299238/6]  PEARTREE, R. J.  Demonstration of a nitrogen based atmosphere: Energy consumption endothermic generator [CONS/5058-T1]  PEDRAM, E.  Assorption of hydrogen sulfide in in an inert atmosphere  PEJSA, J. B.  Cost-effective control systems for	25 p0025 A80-12758  cs of iron ectrolytes 25 p0013 A80-11862  re primary  25 p0013 A80-11863  lapped plastic power lectric strength  25 p017C N80-15346  ky barrier solar  25 p0086 A80-20716  mitoring network 25 p0180 N80-15685  carburizing of the  25 p0173 N80-15591  shale retorted  25 p0085 A80-20454	preliminary assessment [SERI/TR-51-159]  PERKINS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J. A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P. Hydrogen storage by means of revealloy  PERRY, C. W. Naturally occuring carbon dioxide United States. A geologic apprecommic sensitivity study of deproducing carbon dioxide for us recovery [FE-2025-38]  PERRY, R. T. Fuel production characteristics or reactors  PESCHKA, W. Hydrogen storage by use of cryoad comparison to alternatives  PETERS, R. M. Proceedings of the 1978 Coal Chem [CONF-780372]  PETERS, R. R. Graphical representation of TMY savailability for one- and two-acollectors	nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion bybrid 25 p0059 A80-17888 sorbents in 25 p0042 A80-15992 istry Workshop 25 p0150 N80-14264 olar radiation xis solar
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic substitution for superconducting transmission cables and the dietrochemical helium gas [BNL-24779]  PEARSOH, G. L.  Preparation and properties of Au-/n/AlxGal-xAs-/n/Gals Schotticells  PEARSOH, M. J.  Western energy sulfate/nitrate model [PB-299238/6]  PEARTBEE, R. J.  Demonstration of a nitrogen based atmosphere: Energy consumption endothermic generator [CONS/5058-T1]  PEDRAM, E.  Adsorption of hydrogen sulfide in in an inert atmosphere	25 p0025 A80-12758  cs of iron ectrolytes 25 p0013 A80-11862  re primary  25 p0013 A80-11863  lapped plastic power lectric strength  25 p017C N80-15346  ky barrier solar  25 p0086 A80-20716  mitoring network 25 p0180 N80-15685  carburizing of the  25 p0173 N80-15591  shale retorted  25 p0085 A80-20454	preliminary assessment [SERI/TB-51-159]  PRERIMS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P.  Hydrogen storage by means of revealloy  alloy  PERRY, C. W.  Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of deproducing carbon dioxide for us recovery [FE-2025-38]  PERRY, R. T.  Fuel production characteristics or reactors  PESCHKA, W.  Hydrogen storage by use of cryoad comparison to alternatives  PETERS, H. M.  Proceedings of the 1978 Coal Chem [CONF-780372]  PETERS, R. R.  Graphical representation of TMY savailability for one- and two-a	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion hybrid 25 p0059 A80-17888 sorbents in 25 p0042 A80-15992 istry Workshop 25 p0150 N80-14264 olar radiation xis solar 25 p0100 N80-10640
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrockers.  PEARCE, L. J.  Recent advances in high temperatural lithium batteries  PEARMAIN, A. J.  Partial discharge performance of insulation for superconducting transmission cables and the dies of supercritical helium gas [BNL-24779]  PEARSON, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSON, M. J.  Western energy sulfate/nitrate most [PB-2992386]  PEARTEEE, R. J.  Demonstration of a nitrogen based atmosphere: Energy consumption endothermic generator [CONS/5058-T1]  PEDRAM, E.  Adsorption of hydrogen sulfide in in an inert atmosphere  PEJSA, J. H.  Cost-effective control systems for and cooling applications [SAN-1592-1]  PELL, J.	25 p0025 A80-12758  cs of iron ectrolytes 25 p0013 A80-11862  re primary 25 p0013 A80-11863  Lapped plastic power lectric strength 25 p017C N80-15346  ky barrier solar 25 p0086 A80-20716  mitoring network 25 p0180 N80-15685  carburizing of the 25 p0173 N80-15591  shale retorted 25 p0085 A80-20454  r solar heating 25 p0101 N80-10658	preliminary assessment [SERI/TR-51-159]  PERKIMS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J. A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P. Hydrogen storage by means of revealloy  PERRY, C. W. Naturally occuring carbon dioxide United States. A geologic apprecommic sensitivity study of deproducing carbon dioxide for us recovery [FE-2025-38]  PERRY, B. T. Fuel production characteristics or reactors  PESCHKA, W. Hydrogen storage by use of cryoad comparison to alternatives  PETERS, H. M. Proceedings of the 1978 Coal Chem [CONP-780372]  PETERS, R. R. Graphical representation of TMY savailability for one- and two-acollectors [SAND-79-0418] Methodology for determining the cothe optimum solar total energy	nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion hybrid 25 p0059 A80-17888 sorbents in 25 p0042 A80-15992 istry Workshop 25 p0150 N80-14264 olar radiation xis solar 25 p0100 N80-10640 onfiguration of system
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in high temperatural thin batteries  PEARMAIN, A. J.  Partial discharge performance of insulation for superconducting transmission cables and the die of supercritical helium gas [BNI-24779]  PEARSON, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSON, M. J.  Western energy sulfate/nitrate moderate electrochemic generator [CONS/5058-T1]  PEDRAM, E.  Adsorption of hydrogen sulfide in in an inert atmosphere  PEJSA, J. B.  Cost-effective control systems for and cooling applications [SAN-1592-1]  PELL, J.  The prospect for anthracite as a	25 p0025 A80-12758  cs of iron ectrolytes 25 p0013 A80-11862  re primary 25 p0013 A80-11863  Lapped plastic power lectric strength 25 p017C N80-15346  ky barrier solar 25 p0086 A80-20716  mitoring network 25 p0180 N80-15685  carburizing of the 25 p0173 N80-15591  shale retorted 25 p0085 A80-20454  r solar heating 25 p0101 N80-10658	preliminary assessment [SERI/TR-51-159]  PBERKIMS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie  PBERRA, J. J. A manual for cataloging and index [IBI-4432-REV-1]  PBERROUD, P. Hydrogen storage by means of revealloy  PBERY, C. M. Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of deproducing carbon dioxide for us recovery [FE-2025-38]  PBERY, R. T. Fuel production characteristics or reactors  PBSCHKA, W. Hydrogen storage by use of cryoad comparison to alternatives  PBTERS, M. M. Proceedings of the 1978 Coal Chem [CONF-780372]  PBTERS, R. B. Graphical representation of TMY savailability for one- and two-acollectors [SAND-79-0418] Bethodology for determining the coal coptimum solar total energy [SAND-79-0422]	nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion hybrid 25 p0059 A80-17888 sorbents in 25 p0042 A80-15992 istry Workshop 25 p0150 N80-14264 olar radiation xis solar 25 p0100 N80-10640 onfiguration of
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrockers.  PEARCE, L. J.  Recent advances in high temperatural lithium batteries  PEARMAIN, A. J.  Partial discharge performance of insulation for superconducting transmission cables and the dies of supercritical helium gas [BNL-24779]  PEARSON, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSON, M. J.  Western energy sulfate/nitrate most [PB-2992386]  PEARTEEE, R. J.  Demonstration of a nitrogen based atmosphere: Energy consumption endothermic generator [CONS/5058-T1]  PEDRAM, E.  Adsorption of hydrogen sulfide in in an inert atmosphere  PEJSA, J. H.  Cost-effective control systems for and cooling applications [SAN-1592-1]  PELL, J.	25 p0025 A80-12758  cs of iron ectrolytes 25 p0013 A80-11862  re primary 25 p0013 A80-11863  Lapped plastic power lectric strength 25 p017C N80-15346  ky barrier solar 25 p0086 A80-20716  mitoring network 25 p0180 N80-15685  carburizing of the 25 p0173 N80-15591  shale retorted 25 p0085 A80-20454  r solar heating 25 p0101 N80-10658	preliminary assessment [SERI/TR-51-159]  PERKIMS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J. A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P. Hydrogen storage by means of revealloy  PERRY, C. W. Naturally occuring carbon dioxide United States. A geologic apprecommic sensitivity study of deproducing carbon dioxide for us recovery [FE-2025-38]  PERRY, B. T. Fuel production characteristics or reactors  PESCHKA, W. Hydrogen storage by use of cryoad comparison to alternatives  PETERS, H. M. Proceedings of the 1978 Coal Chem [CONP-780372]  PETERS, R. R. Graphical representation of TMY savailability for one- and two-acollectors [SAND-79-0418] Methodology for determining the cothe optimum solar total energy	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion hybrid 25 p0059 A80-17888 sorbents in 25 p0042 A80-15992 istry Workshop 25 p0150 N80-14264 olar radiation xis solar 25 p0100 N80-10640 onfiguration of system 25 p0172 N80-15574
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristics.  PEARCE, L. J.  Recent advances in high temperatural discharge performance of insulation for superconducting transmission cables and the died of supercritical helium gas [BNL-24779]  PEARSOH, G. L.  Preparation and properties of Au-/n/AlxGal-xAs-/n/Gals Schotticells  PEARSOH, M. J.  Western energy sulfate/nitrate model [PB-299238/6]  PEARTREE, R. J.  Demonstration of a nitrogen based atmosphere: Energy consumption endothermic generator [CONS/5058-T1]  PEDRAM, B.  Adsorption of hydrogen sulfide in in an inert atmosphere  PEJSA, J. B.  Cost-effective control systems for and cooling applications [SAN-1592-1]  PELLI, J.  The prospect for anthracite as a resource	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength 25 p017C N80-15346 ky barrier solar 25 p0086 A80-20716 nitoring network 25 p0180 N80-15685 carburizing of the 25 p0173 N80-15591 shale retorted 25 p0085 A80-20454 r solar heating 25 p0101 N80-10658 national energy 25 p0014 A80-11960	preliminary assessment [SERI/TB-51-159]  PREKINS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J. A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P. Hydrogen storage by means of revealloy  PERRY, C. W. Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of d producing carbon dioxide for us recovery [FP-2025-38]  PERRY, R. T. Fuel production characteristics oreactors  PESCHKA, W. Hydrogen storage by use of cryoad comparison to alternatives  PETERS, H. M. Proceedings of the 1978 Coal Chem [CONF-780372]  PETERS, B. R. Graphical representation of TMY s availability for one- and two-acollectors [SAND-79-0418] Bethodology for determining the cathe optimum solar total energy [SND-79-0422]  PETERSON, J. R.	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion hybrid 25 p0059 A80-17888 sorbents in 25 p0042 A80-15992 istry Workshop 25 p0150 N80-14264 olar radiation xis solar 25 p0100 N80-10640 onfiguration of system 25 p0172 N80-15574 carbonate fuel
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristics.  PEARCE, L. J.  Recent advances in high temperatural discharge performance of insulation for superconducting transmission cables and the die of supercritical helium gas [BNL-24779]  PEARSON, G. L.  Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schotticells  PEARSON, H. J.  Western energy sulfate/nitrate mode [PB-299238/6]  PEARTREE, R. J.  Demonstration of a nitrogen based atmosphere: Energy consumption endothermic generator [CONS/5058-T1]  PEDRAM, E.  Adsorption of hydrogen sulfide in in an inert atmosphere  PEJSA, J. H.  Cost-effective control systems for and cooling applications [SAN-1592-1]  PELL, J.  The prospect for anthracite as a resource	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength 25 p017C N80-15346 ky barrier solar 25 p0086 A80-20716 nitoring network 25 p0180 N80-15685 carburizing of the 25 p0173 N80-15591 shale retorted 25 p0085 A80-20454 r solar heating 25 p0101 N80-10658 national energy 25 p0014 A80-11960	preliminary assessment [SERI/TB-51-159]  PRERKINS, R. B.  Recent progress in inertial confiresearch at the Los Alamos Scie  PEERA, J. J.  A manual for cataloging and index [LBL-4432-REV-1]  PEEROUD, P.  Hydrogen storage by means of revealloy  PERRY, C. W.  Naturally occuring carbon dioxide United States. A geologic appreconomic sensitivity study of deproducing carbon dioxide for us recovery [FE-2025-38]  PERRY, R. T.  Fuel production characteristics or reactors  PESCHKA, W.  Hydrogen storage by use of cryoad comparison to alternatives  PETERS, H. M.  Proceedings of the 1978 Coal Chem [CONF-780372]  PETERS, R. R.  Graphical representation of TMY savailability for one- and two-acollectors [SAND-79-0418]  Bethodology for determining the cathe optimum solar total energy [SAND-79-0422]  PETERSON, J. R.  Commercial applications of molten cell systems	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion hybrid 25 p0059 A80-17888 sorbents in 25 p0042 A80-15992 istry Workshop 25 p0150 N80-14264 olar radiation xis solar 25 p0100 N80-10640 onfiguration of system 25 p0172 N80-15574 carbonate fuel 25 p0016 A80-11974
PEARCE, L.  The electrochemical characteristic sulphide in immobilized salt electrochemical characteristic sulphide in immobilized salt electrochemical characteristics.  PEARCE, L. J.  Recent advances in high temperatural discharge performance of insulation for superconducting transmission cables and the died of supercritical helium gas [BNL-24779]  PEARSOH, G. L.  Preparation and properties of Au-/n/AlxGal-xAs-/n/Gals Schotticells  PEARSOH, M. J.  Western energy sulfate/nitrate model [PB-299238/6]  PEARTREE, R. J.  Demonstration of a nitrogen based atmosphere: Energy consumption endothermic generator [CONS/5058-T1]  PEDRAM, B.  Adsorption of hydrogen sulfide in in an inert atmosphere  PEJSA, J. B.  Cost-effective control systems for and cooling applications [SAN-1592-1]  PELLI, J.  The prospect for anthracite as a resource	25 p0025 A80-12758 cs of iron ectrolytes 25 p0013 A80-11862 re primary 25 p0013 A80-11863 lapped plastic power lectric strength 25 p017C N80-15346 ky barrier solar 25 p0086 A80-20716 nitoring network 25 p0180 N80-15685 carburizing of the 25 p0173 N80-15591 shale retorted 25 p0085 A80-20454 r solar heating 25 p0101 N80-10658 national energy 25 p0014 A80-11960	preliminary assessment [SERI/TR-51-159]  PERKINS, R. B. Recent progress in inertial confiresearch at the Los Alamos Scie  PERRA, J. J. A manual for cataloging and index [LBL-4432-REV-1]  PERROUD, P. Hydrogen storage by means of revealloy  PERRY, C. W. Naturally occuring carbon dioxide United States. A geologic apprecommic sensitivity study of deproducing carbon dioxide for us recovery [FE-2025-38]  PERRY, R. T. Fuel production characteristics or eactors  PESCHKA, W. Hydrogen storage by use of cryoad comparison to alternatives  PETERS, R. M. Proceedings of the 1978 Coal Chem [CONP-780372]  PETERS, R. B. Graphical representation of TNY savailability for one- and two-acollectors [SAND-79-0418]  Methodology for determining the comparison, J. R. Commercial applications of molten	25 p0158 N80-14520 nement fusion ntific Laboratory 25 p0056 A80-17862 ing documents 25 p0118 N80-11946 rsible magnesium 25 p0041 A80-15990 sources in the aisal and rilling and e in enhanced oil 25 p0130 N80-12624 f fusion hybrid 25 p0059 A80-17888 sorbents in 25 p0042 A80-15992 istry Workshop 25 p0150 N80-14264 olar radiation xis solar 25 p0100 N80-10640 onfiguration of system 25 p0172 N80-15574 carbonate fuel 25 p0016 A80-11974

PBTIT, G. Technico economic study of the use of hydrogen and	PILATI, D. A. Process optimization of industrial energy use
methanol for road transport  25 p0042 A80-15993	[BNL-26482] 25 p0141 N80-13650 PILLAI, N. B.
PETRASH, D. A. Preparing aircraft propulsion for a new era in	Reliability studies on thin film solar cells for satellite application
energy and the environment 25 p0053 A80-17737	25 p0027 A80-12775
PETREE, F. Electrical power system to TFTE poloidal coils	Economic comparisons of solar and fossil total energy systems for industrial applications
25 p0080 A80-19620 PRTRICH, C. H.	[ASME PAPER 79-WA/TS-6] 25 p0065 A80-18552 PINSON, J. D.
Computer software to calculate and map geologic parameters required in estimating coal	Analysis of remote site energy storage and generation systems
production costs [EPRI-EA-674] 25 p0095 N80-10584	[AD-A074869] 25 p0156 N80-14504 PIRMATOV, I. I.
PETRICK, M.  Experimental two-phase liquid-metal	Calculation of the optical characteristics of
magnetohydrodynamic generator program	high-power two-mirror solar furnaces 25 p0044 A80-16629
[AD-A073128] 25 p0132 N80-12882 PETROV, V. G.	PISKUNOV, V. A. An engine fuel chemistry solution to the problem
Concept of tokamak-type reactor with high-temperature blanket	of jet fuel supplies 25 p0001 180-10199
25 p0059 A80-17885 PETTIBONE, J. A.	PISTUNOVICH, V. I. Concept of tokamak-type reactor with
Novel scheme for making cheap electricity with nuclear energy	high-temperature blanket
[UCID-18153-REV-1] 25 p0171 N80-15564	25 p0059 A80-17885
PETTIT, B. B.  Thermal aging characteristics of electrodeposited black chrome solar coatings	Western energy sulfate/nitrate monitoring network [PB-299238/6] 25 p0180 N80-15685 PITROLO, A. A.
[SAND-78-2094C] 25 p0159 N80-14527	Gas recovery from unconventional sources
Use of nuclear techniques in the characterization of chrome black solar absorber surfaces 25 p0084 A80-20141	25 p0014 &80-11958 PLATZ, P. Multichannel Thomson scattering system for the tokamak TFB based on two-detector spectrum
PEZAT, M.	analyzers
Use of reversible hydrides for hydrogen storage 25 p0042 A80-15991	PLUNKETT, A. B. 25 p0060 A80-18111
PEZDIRTZ, G. F.  Overview of division of energy storage program  Department of energy	Regenerative flywheel energy storage system [UCRL-13982] 25 p0112 N80-11594 PODGORNYI, A. N.,
25 p0016 A80-11979	Hydrogen - The fuel of the future
PPANN, H. Petrochemicals: Their economic significance in	POLLARD, W. G. 25 p0002 A80-10349
the domestic economy [PB-299733/6] 25 p0181 N80-15992	Analysis of systems for the generation of electricity from solar radiation
PFENDER, E. Studies in heat transfer: A Festschrift for E. R.	POLLOCK, P. 25 p0060 A80-18124
G. Eckert  25 p0036 A80-14655  PHELPS, P. L.	Implementation of state solar incentives: Land-use planning to ensure solar access
Environmental overview of geothermal development: The Geysers-Calistoga KGRA. Volume 1: Issues	[SERI/Th-51-163] 25 p0158 N80-14519 Implementation of state solar incentives: A preliminary assessment
and recommendations [UCBL-52496-VOL-1] 25 p0177 N80-15626	[SERI/TE-51-159] 25 p0 158 N80-14520 PONROY, S. R. A.
PHILLIPS, J. T.	Failure mechanisms of vented nickel-cadmium cells
The 10MW(e) solar thermal central receiver pilot plant: Beliostat foundation and interface	in overcharge 25 p0010 A80-11840
structure investigation [SAND-78-8180] 25 p0097 N80-10612	PONS, R. L. Optimization of a point-focusing, distributed
PHILLIPS, S. L. A manual for cataloging and indexing documents	receiver solar thermal electric system [ASME PAPER 79-WA/SOL-11] 25 p0065 A80-18553
[LBL-4432-REV-1] 25 p0118 N80-11946 PHILLIPS, W. F.	POON, P.  Comparative study of solar optics for paraboloidal
The effects of axial conduction on collector heat removal factor	CONCENTRATORS [ASME PAPER 79-WA/SOL-8] 25 p0066 A80-18564
PHIPPS, G. S. 25 p0004 A80-11333	POOTH, L. A. Synfuel (hydrogen) production from fusion power
Heliostat Beam Characterization System 25 p0022 A80-12627	[LA-UR-79-1115] 25 p0136 N80-13296 POPESCU, C. I.
PIEPER, W. M.  The Kirsten rotor as a wind turbine  25 p0039 A80-15330	Some promising aspects regarding solar energy conversion with metal oxide photovoltaic cells 25 p0011 A80-11853
PIERSON, E. S. Influence of wall-jet gas injection on	POPOVICS, C. Experimental studies of interaction and transport
liquid-metal MHD generator performance 25 p0047 A80-16996	processes in laser fusion 25 p0057 A80-17864
Solar-powered liquid-metal MBD power systems [ASME PAPER 79-WA/SOL-22] 25 p0065 A80-18554	POQUERUSSE, A. Experimental studies of interaction and transport
Experimental two-phase liquid-metal magnetohydrodynamic generator program	processes in laser fusion 25 p0057 A80-17864
[AD-A073128] 25 p0132 N80-12882 PIGHASTII, S. S.	PORTER, J. J.
Investigation of the effect of piston inductance on energetic characteristics of a piston linear	Energy conservation through point source recycle with high temperature hyperfiltration [PB-299183/4] 25 p0180 N80-15688
generator with a ferromagnetic core 25 p0083 A80-20066	POST, R. P. Search for fusion power
•	[UCRL-81890] 25 p0132 N80-12900

PRESONAL AUTHOR INDEX BANBACK, G.

POTH, I.	PSAKHIS, B. I.
Construction and test of a high power injector of	Energetics aspects of environmental protection
hydrogen cluster ions	25 p0072 A80-18733
25 p0080 A80-19618	PUESCHEL, R. F. Meteorological effects of oil refinery operations
POTTER, P. E.	in Los Angeles
Devonian paleocurrents of the Applachian basin [METC/CR-79/22] 25 p0149 N80-13735	[PB-300720/0] 25 p0180 N80-15758
POWELL, I.	PULICE, J.
New concept for a system suitable for solar	Commercialization task force for high Btu
simulation 25 p0083 A80-19976	gasification [TID-28849] 25 p0135 N80-13286
POWELL, J. L.	PULLMAN, B.
Department of Energy fossil energy equipment	Driving cycle comparisons of energy economies and
development programs	emissions from an alcohol and gasoline fueled
[CONF-790405-14] 25 p0112 N80-11590	vehicle
POWELL, J. R.	[CONF-790520-7] 25 p0134 N80-13274
Two-dimensional heating analysis of fusion	PUNNANI, D. V.
blankets for synfuel production 25 p0082 A80-19665	Status of the PEATGAS process [CONF-781045-3] 25 p0120 N80-12199
One- and two-dimensional heating analyses of	PYTLIBSKI, J. T.
fusion synfuel blankets	A new solar thermal electricity/cooling generation
[BNL-NUREG-25635] 25 p0104 N80-10922	system
High temperature electrolysis	[AIAA PAPER 80-0296] 25 p0063 A80-18300
[BNL-26331] 25 p0167 N80-15227	_
Fusion energy for hydrogen production	$\mathbf{O}$
[BNL-24906] 25 p0180 N80-15897	ATTENDED A P
POWER, H. J.	QUENTIN, G. H.  Fixed-bed gasifier dynamic model for IGCCP control
Photovoltaic solar cell array used for supplemental power generation	study
25 p0061 A80-18129	25 p0088 A80+20883
PRAMANIK, D.	QUICKENDEN, T. I.
The spectral selectivity of conducting micromeshes	A comprehensive model for photovoltage generation
25 p0087 A80-20720	at metal electrodes in contact with solutions of
PRATT, R. B.	fluorescent dyes
Performance of residential solar heating and	25 p0004 A80-10879
cooling system with flat-plate and evacuated	QUINLIVAN, S.
tubular collectors: CSU solar house 1	Environmental assessment report: Lurgi coal
[COO-2577=16] 25 p0163 N80-14568	gasification systems for SNG
Performance of residential solar heating and	[PB-298109/0] 25 p0120 N80-12204
cooling system with flat-plate and evacuated tubular collectors: CSU Solar House 1	<b>n</b>
[COO-2577-17] 25 p0176 N80-15616	R
PRELAT, A. E.	RAAB, G. A.
Geological and geothermal data use investigations	Mineral changes during oil shale retorting
for application explorer mission-A, heat	. 25 p0085 A80-20455
capacity mapping mission	BAARN, V. P.
[E80-10033] 25 p017C N80-15528	Chemical structures and reactivities of coal as an
PRENGER, P. C., JR.	organic natural product
Performance limits for liquid-metal heat ripes containing long adiabatic sections	[CONF-790415-25] 25 p0105 N80-11168 BABASSE, C.
[LA-UR-79-1241] 25 p0095 N80-10472	Plame propagation through unconfined and confined
PRESS, K. K.	hemispherical stratified gaseous mixtures
Studies on the Ca-CaCrO4 and Li-Al-FeS2 systems	25 p0008 A80-11816
for thermal battery applications	RABER, R.
25 p0012 A80-11854	Using surface waters for supplementing injection
PRICE, G.	at the Salton Sea Geothermal Field (SSGF),
Biomass-based alcohol fuels: The near-term	Southern California
potential for use with gasoline [HCP/T4101-03] 25 p0093 N80-10393	[UCRL-83011] 25 p0124 N80-12561 HABIHOVICH, M. S.
PRITCHARD, J. T.	Relativistic high-current microwave plasma
Optimization of a solar heating system with	electronics
integral compensation	25 p0083 A80-19847
25 p0 089 A80-20894	RABL, A.
PROCHAZKA, S.	Derivation of method for predicting long term
Evaluation of sintered SiC as an electrode and	
	average energy delivery of solar collectors
container material in sodium/sulfur cells	25 p0005 A80-11339
container material in sodium/sulfur c∈lls 25 p0035 A80-14588	25 p0005 A80-11339 Simple procedure for predicting long term average
container material in sodium/sulfur cells 25 p0035 A80-14588 PROSHLETSOV, A. P.	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSELETSOV, A- P- Principles of plasma heating and confinement in a	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors
container material in sodium/sulfur cells 25 p0035 A80-14588 PROSHLETSOV, A. P.	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors 25 p0005 A80-11340
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSELETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSHLETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  25 p0005 A80-11340 RADDING, S. B.
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSHLETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B. Meteorological effects of oil refinery operations in los Angeles	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372]  BAFAT, N. B.
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSHLETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B. Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0] 25 p0180 N80-15758	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors 25 p0005 A80-11340  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372] 25 p0150 N80-14264  RAPAT, N. H. Hulti-pass solar heater with heat-exchanging
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSELETSOV, A- P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B- Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0] 25 p0180 N80-15758  PRYOR, D- V-	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  25 p0005 A80-11340  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372] 25 p0150 N80-14264  RAPAT, N. B. Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSELETSOV, A- P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B- Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0] 25 p0180 N80-15758  PRYOR, D- V- RAPAD - Real-time Accurate Performance Analysis of	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  25 p0005 A80-11340  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372] 25 p0150 N80-14264  RAPAT, N. H. Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation [ASRE PAPER 79-WA/HT-67] 25 p0070 A80-18600
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSHLETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B. Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0] 25 p0180 N80-15758  PRIOR, D. V. RAPAD - Real-time Accurate Performance Analysis of Data	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  25 p0005 A80-11340  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372] 25 p0150 N80-14264  RAPAT, N. H. Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation [ASME PAPPER 79-WA/HT-67] 25 p0070 A80-18600  RAHARUHAR, R.
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSELETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B. Meteorological effects of oil refinery operations in los Angeles [PB-300720/0] 25 p0180 N80-15758  PRIOB, D. V. RAPAD - Beal-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  25 p0005 A80-11340  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372] 25 p0150 N80-14264  RAPAT, N. H. Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation [ASME PAPER 79-WA/HT-67] 25 p0070 A80-18600  RAHARUHAE, B. Modeling and simulation of WECS assisted utility
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSHLETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B. Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0] 25 p0180 N80-15758  PRIOR, D. V. RAPAD - Real-time Accurate Performance Analysis of Data	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  25 p0005 A80-11340  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372] 25 p0150 N80-14264  RAPAT, N. H. Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation [ASME PAPPER 79-WA/HT-67] 25 p0070 A80-18600  RAHARUHAR, R.
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSHLETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B. Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0] 25 p0180 N80-15758  PRYOR, D. V. RAPAD - Real-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565  PRYOR, J. A.	25 p0005 A80-11339 Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  25 p0005 A80-11340  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372] 25 p0150 N80-14264  RAPAT, N. H. Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation [ASME PAPER 79-WA/HT-67] 25 p0070 A80-18600  RAHARUMAD, R. Modeling and simulation of WECS assisted utility systems  25 p0088 A80-20887 Application of field-modulated generator systems
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSHLETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B. Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0] 25 p0180 N80-15758  PRYOR, D. V. RAPAD - Real-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565  PRYOR, J. A. SEC solids - Boiler fuel and building block 25 p0015 A80-11967  PRYOR, R. A.	25 p0005 A80-11339  Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372] 25 p0150 N80-14264  RAPAT, N. M. Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation [ASRE PAPER 79-WA/HT-67] 25 p0070 A80-18600  RAHARUBAR, R. Modeling and simulation of WECS assisted utility systems  25 p0088 A80-20887  Application of field-modulated generator systems to dispersed solar thermal electric generation
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSHLETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B. Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0] 25 p0180 N80-15758  PRYOB, D. V. RAPAD - Beal-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565  PRYOB, J. A. SRC solids - Boiler fuel and building block 25 p0015 A80-11967  PRYOB, R. A. The automated array assembly task of the low-cost	25 p0005 A80-11339  Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCMF-780372] 25 p0150 N80-14264  RAPAT, N. H. Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation [ASME PAPER 79-WA/HT-67] 25 p0070 A80-18600  RAHAKUMAE, R. Modeling and simulation of WECS assisted utility systems 25 p0088 A80-20887  Application of field-modulated generator systems to dispersed solar thermal electric generation [NASA-CR-162536] 25 p0155 N80-14488
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSHLETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B. Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0] 25 p0180 N80-15758  PRYOR, D. V. RAPAD - Beal-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565  PRYOR, J. A. SEC solids - Boiler fuel and building block 25 p0015 A80-11967  PRYOR, R. A. The automated array assembly task of the low-cost silicon solar array project, phase 2	25 p0005 A80-11339  Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  25 p0005 A80-11340  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372] 25 p0150 N80-14264  RAPAT, N. M. Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation [ASME PAPER 79-WA/HT-67] 25 p0070 A80-18600  RAHAKUMAR, R. Modeling and simulation of WECS assisted utility systems 25 p0088 A80-20887  Application of field-modulated generator systems to dispersed solar thermal electric generation [NASA-CE-162536] 25 p0155 N80-14488  RAHBACK, G.
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSELETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B. Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0] 25 p0180 N80-15758  PRYOB, D. V. RAPAD - Real-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565  PRYOB, J. A. SEC solids - Boiler fuel and building block 25 p0015 A80-11967  PRYOB, R. A. The automated array assembly task of the low-cost silicon solar array project, phase 2 [NASA-CR-162429] 25 p0109 N80-11562	25 p0005 A80-11339  Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372] 25 p0150 N80-14264  RAPAT, N. M. Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation [ASME PAPER 79-WA/HT-67] 25 p0070 A80-18600  RAHARUHAR, R. Modeling and simulation of WECS assisted utility systems 25 p0088 A80-20887  Application of field-modulated generator systems to dispersed solar thermal electric generation [NASA-CE-162536]  EAMBBACK, G. Evaluation of solar Rankine-cycle engine systems
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSHLETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration  25 p0055 A80-17822  PROULY, B. Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0]  25 p0180 N80-15758  PRYOB, D. V. RAPAD - Beal-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1]  25 p0066 A80-18565  PRYOB, J. A. SRC solids - Boiler fuel and building block 25 p0015 A80-11967  PRYOB, B. A. The automated array assembly task of the low-cost silicon solar array project, phase 2 [NASA-CR-162429]  PRYOB, W. A.	25 p0005 A80-11339  Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  25 p0005 A80-11340  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372] 25 p0150 N80-14264  RAPAT, N. M. Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation [ASME PAPER 79-WA/HT-67] 25 p0070 A80-18600  RAHAKUMAR, R. Modeling and simulation of WECS assisted utility systems 25 p0088 A80-20887  Application of field-modulated generator systems to dispersed solar thermal electric generation [NASA-CE-162536] 25 p0155 N80-14488  RAHBACK, G.
container material in sodium/sulfur cells 25 p0035 A80-14588  PROSELETSOV, A. P. Principles of plasma heating and confinement in a compact toroidal configuration 25 p0055 A80-17822  PROULY, B. Meteorological effects of oil refinery operations in Los Angeles [PB-300720/0] 25 p0180 N80-15758  PRYOB, D. V. RAPAD - Real-time Accurate Performance Analysis of Data [ASME PAPER 79-WA/SOL-1] 25 p0066 A80-18565  PRYOB, J. A. SEC solids - Boiler fuel and building block 25 p0015 A80-11967  PRYOB, R. A. The automated array assembly task of the low-cost silicon solar array project, phase 2 [NASA-CR-162429] 25 p0109 N80-11562	25 p0005 A80-11339  Simple procedure for predicting long term average performance of nonconcentrating and of concentrating solar collectors  RADDING, S. B. Proceedings of the 1978 Coal Chemistry Workshop [CCNF-780372] 25 p0150 N80-14264  RAPAT, N. M. Multi-pass solar heater with heat-exchanging passes and exposed to non-uniform radiation [ASME PAPER 79-WA/HT-67] 25 p0070 A80-18600  RAHARUHAR, R. Modeling and simulation of WECS assisted utility systems 25 p0088 A80-20887  Application of field-modulated generator systems to dispersed solar thermal electric generation [NASA-CE-162536]  EAMBBACK, G. Evaluation of solar Rankine-cycle engine systems

·	
RAMBY, H. J., JR.	RAY, P. S.
Thermodynamic behaviour of the Bagnore geothermal field	<ul> <li>Calculations of inertial confinement fusion gains using a collective model for reheat,</li> </ul>
25 p0075 A80-19205 RAMSEY, J. W.	bremsstrahlung and fuel depletion for highly efficient electrodynamic laser compressions
Heat transfer to a melting solid with application to thermal energy storage systems	25 p0058 A80-17875 REALINI, G.
25 p0036 A80-14667 Belting in phase-change thermal storage media	Influence of the scaling of plasma confinement on the economy and unit size of ignited toroidal
[COO-2993-1] 25 p0 173 N80-15584	reactors
US energy flow in 1978	REBUT, P. H. 250 p0079 A80-19594
25 p0158 N80-14517	Status of the JET project 25 p0082 A80-19708
Baseline design of the thermoelectric reactor space power system	RECHERRGER, H. Solar cells in practice
[LA-UR-79-1242] 25 p0 149 N80-13906 RANNEY, H. W.	25 p0083 A80-19844 REECE, E. W.
Heat exchange fluids and techniques 25 p0041 A80-15659	Development of in situ marine seismic and geotechnical instrumentation systems
RAO, C. R. District space heating potential of low	[SAND-79-0868C] 25 p0137 N80-13431 REED, C. B.
temperature hydrothermal geothermal resources in the southwestern United States	Solar-powered liquid-metal MHD power systems [ASME PAPER 79-WA/SOL-22] 25 p0065 A80-18554
[NMEI-10-1] 25 p0172 N80-15582	REED, J. W.
RAO, D. S. Review of the work done at C.E.E.R.I. on the	An analysis of the potential of wind energy conversion systems
development of single crystal silicon solar cells for use with concentrated light	25 p0048 A80-17133 Wind time series analyses for WECS applications
25 p0027 A80-12777 RAO, K. K.	[SAND-77-1701] 25 p0132 N80-12709 REED, T. B.
An investigation of experimental performance of a compound parabolic concentrator	Research overview of biological and chemical conversion methods and identification of key
25 p0023 A80-12748	research areas for SERI [SEBI/TE-33-067] 25 p0115 N80-11617
Techno-economic feasibility analysis of solar cells with and without concentrators for rural	REED, W. E. Microwave heating: Industrial applications.
lighting 25 p0026 A80-12773	Citations from the engineering data base [NTIS/PS-79/0632/4] 25 p0102 N80-10674
RAPP, C. P.  Determination of the technical and economic	REEDY, B. D., JR.
feasibility of luminescent solar concentrators	Sandia composite-rim flywheel development [SAND-78-1865C] 25 p0177 N80-15624
[SAND-79-7005] 25 p0100 N80-10650 RAPPAPORT, R. B.	RBH, L. Fluid bed combustion in processing, environmental
Energy from the West: Energy resource development systems report. Volume 1: Introduction and	protection and energy supply 25 p0072 A80-18735
general social controls [PB-299177/6] 25 p0152 N80-14463	RRID, H., JR: Coal-shale interface detection system
Energy from the West: Energy resource development systems report. Volume 2: Coal	[NASA-CASE-MFS-23720-2] 25 p0152 N80-14423 BEILLY, J. P.
[PB-299178/4] 25 p0152 N80-14464 Energy from the West: Energy resource development	CO2 electric discharge lasers - Present status and future applications
systems report. Volume 3: 0il shale [PB-299179/2] 25 p0152 N80-14465	25 p0039 A80-14960 REINERT, R. P.
Energy from the West: Energy resource development systems report. Volume 4: Uranium	Weight optimization of ultra large space structures [SAWE PAPER 1301] 25 p0086 A80-20641
[PB-299180/0] 25 p0 152 N80-14466 Energy from the West: Energy resource development	BEISPELD, R.
systems report. Volume 5: 0il and natural gas [PB-299181/8] 25 p0152 N80-14467	Improved planar solar convertor based on uranyl neodymium and holmium glasses
Energy from the West: Energy resource development	25 p0083 A80-19740
systems report. Volume 6: Geothermal [PB-299182/6] 25 p0152 N80-14468	Work on laser interaction and implosion at Centre d'Etudes de Limeil
RATAJCZAK, A. F. A photovoltaic power system in the remote African	25 p0057 A80-17863
village of Tangaye, Upper Volta [NASA-TM-79318] 25 p0123 N80-12552	Deep terrestrial heat flow measurements in New Mexico and neighboring geologic areas
RATCLIFF, D. D.  The USAF Academy flywheel-electric car preliminary	[PB-299489/5] 25 p0153 N80-14471
design report [AD-A071242] 25 p0123 N80-12553	Flat-plate solar collector materials 25 p0035 A80-14409
RATZEL, A. C. Utilization of heavy fill gases in annular solar	RENIER, J. P. Economics of fusion driven symbiotic energy systems
receiver geometries for heat loss reduction [ASME PAPER 79-WA/SOL-18] 25 p0065 A80-18557	[CONF-790602-50] 25 p0128 N80-12602 RENTZ, R. L.
Heat loss reduction techniques for annular solar receiver designs	Status of alcohol fuels utilization technology for
[SAND-78-1769] 25 p0111 N80-11581	stationary gas turbines [HCP/M2098-03] 25 p0135 N80-13283
Design considerations for a proposed passive vacuum solar annular receiver	REUTER, R. C., JR. Weight minimization of sandwich type solar
[SAND-78-0982] 25 p0111 N80-11582 Evaluation of the evacuated solar annular	collector panels [SAND-78-2305C] 25 p0147 N80-13710
receivers used at the Midtemperature Sclar Systems Test Facility (MSSTP)	REUTSKII, S. IU. Simultaneous investigation of transverse and
[SAND-78-0983] 25 p0173 N80-15585	longitudinal edge effects in the channel of a plane MHD induction pump
Copper diffusion and photovoltaic mechanisms at Cu-CdS contact	25 p0030 A80-12897
25 p0033 A80-13204	

PERSONAL AUTHOR INDEX ROMAINE, W. B.

RINGLDS, R.	Economic performance of passive solar heating: A
A high performance porous flat-plate solar collector 25 p0021 A80-12438	preliminary analysis [LA-UR-78-2861] 25 p0100 N80-10645
BINBHAMBR, T. B.	Energy planning with solar and conservations:
Evaluation of fuel resources and requirements for the magnetic fusion energy program	Individual values and community choice [LA-UB-79-1599] 25 p0142 N80-13653
[MLH-2419] 25 p0164 N80-14570	ROARK, W. H. Chemical structures and reactivities of coal as an
Fuel production characteristics of fusion hybrid	organic natural product
reactors 25 p0C59 <b>A80-178</b> 88	[CONF-790415-25] 25 p0105 N80-11168 ROBERTS, B. N.
ICE, M. P.  Heat transfer analysis of receivers for a solar	Electricity generation from jet-stream winds 25 p0007 A80-11644
concentrating collector	BOBERTS, B. B.
[ASME PAPER 79-WA/SOL-20] 25 p0065 A80-18558 IXCE, R. L. Pluidized-bed combustion of high sulfur coals	Analysis of financial programs for energy conservation: Market simulation (penetration) model
[METC/RI-79/4] 25 p0093 N80-10386	[HCF/M8662-1] 25 p0114 N80-11606
Commercialization strategy report for small wind	ROBERTSON, C. S. A conceptual design study on the application of
systems [TID-28844-DRAFT] 25 p0161 N80-14543	liquid metal heat transfer technology to the solar thermal power plant
Commercialization strategy report for large wind	[NASA-CR-162544] 25 p0154 N80-14484
systems [TID-28843-DRAPT] 25 p0161 N80-14544	ROBERTSON, J.  Comparison of geothermal energy with coal, oil,
NICHARD, E. H. The basics of magnetic separation as applied to	and natural gas for selected uses [DOE/ET-27139-1] 25 p0123 N80-12558
municipal solid waste reclamation plants	ROBERTSON, R. C.
25 p0074 A80-18871 RICHARDS, T. R.	Waste heat rejection from geothermal power stations [CRNL/TM-6533] 25 p0125 N80-12575
Modified power law equations for vertical wind profiles	Gasification of residual materials from coal
[NASA-TM-79275] 25 p0138 N80-13623	liquefaction. Evaluation of SRC 2 vacuum flash
RICHBLS, R. Assessing energy policy models - Current state and	drum bottoms from Powhatan coal as a feedstock for the Texaco gasification processes
future directions 25 p0009 A80-11831	[FE-2247-2] 25 p0119 N80-12191 Gasification of residual materials from coal
RICHTER, E.	liquefaction [FE-2247-22] 25 p0135 N80-13289
Regenerative flywheel energy storage system [UCRL-13982]. 25 p0112 N80-11594	ROBINSON, A. C.
RIBRSGARD, P. Effects of conditioning agents on emissions from	SEASAT demonstration experiments with the offshore oil, gas and mining industries
coal-fired hoilers: Test report no. 1 [PB-299191/7] 25 p0165 N80-14590	[NASA-CR-162423] 25 p0108 N80-11532 ROBINSON, K. K.
RIETJENS, L. H. T.	Catalyst development for coal liquefaction
The physics of closed cycle MHD power generation 25 p0043 A80-16264	[EPRI-AF-1084] 25 p0136 N80-13292 ROBINSON, L. K.
RINDE, J. A.  Materials program for fiber composite flywheels	West Coast Forum on Appropriate Technology [PB-298986/1] 25 p0166 N80-14962
[UCRL-81724] 25 p0115 N80-11618	ROBINSON, S. L.
RINDT, B. A.  Heat pump centered integrated community energy	Applications analysis of fixed site hydrogen storage [SAND-78-8272] 25 p0092 N80-10384
systems; System development [ANL-ICES-TM-28] 25 p0111 N80-11574	ROCCO, P.  A system for the control of tritium losses in
RINES, C.  Commercialization strategy report for energy from	primary and steam circuits of a fusion power plant 25 p0082 A80-19668
urban wastes	RODEKOHR, M.
[TID-28852-DRAFT] 25 p0 158 N80-14521 RINGO, N.	Energy demand in the developing countries [DCE/EIA-0183/10] 25 p0177 N80-15631
Fundamental economic issues in the develorment of small-scale hydro	ROESSNER, J. D. Application of diffusion research to solar energy
[DOE/RA-23-216.00.0-02] 25 p0 143 N80-13667	policy issues
RIPIN, B. H. Inertial confinement fusion at NRL	[SERI/TR-51-194] 25 p0 158 N80-14518 BOGAN, J. B.
RISEN, W. N., JR. 25 p0056 A80-17861	Industrial solar total energy systems 25 p0017 A80-11987
An electrochemical heat engine for direct solar energy conversion	ROGER, J. A. Theory of the direct coupling between D.C. motors
25 p0061 A80-18131	and photovoltaic solar arrays
RISKIEV, T. T.  Calculation of the optical characteristics of	ROGERS, W. E. 25 p0005 A80-11334
high-power two-mirror solar furnaces 25 p0044 A80-16629	Heat transfer analysis of receivers for a solar concentrating collector
RITSCHARD, B. L. Characterization of solid-waste conversion and	[ASME PAPER 79-WA/SOL-20] 25 p0065 A80-18558 ROGISTER, A.
cogeneration systems	What is the mechanism responsible for the
[LBL-7883] 25 p0141 N80-13648 RIUTOV, D. D.	precursors of internal disruptions 25 p0054 A80-17807
Transverse particle losses in axially asymmetrical open traps	ROLLINS, R. Measurement of gaseous hydrogen chloride emissions
25 p0055 A80-17840	from municipal refuse energy recovery systems in
ROACE, F.  Economic performance - Evaluations for solar energy	the United States 25 p0019 A80-12128
25 p0014 A80-11956 Passive and active residential solar heating: A	ROMAINE, W. R.  Nead, Nebraska, 25-kW photovoltaic power system
comparative economic analysis of select designs	[COO-4094-10] 25 p0127 N80-12592
25 p0021 A80-12435	

ROMEY. I. Current German developments in coal liquefaction technology 25 p0015 A80-11965 ROMBERS, P. J. Behaviour of the secondary lithium electrode on alloying substrates in propylene carbonate based electrolytes 25 p0012 A80-11857 RONALLO, D. P. Mathematical modeling of coal gasification processes 25 p0089 A80-20913 [PB-299181/8] ROSAI, L. Behavior of SORB-AC wafer pumps in contaminated H2 plasmas and during maintenance of plasma machines 25 p0082 A80-19672 [PB-299182/6] BYTHER, J. H. Fuel production characteristics of fusion hybrid reactors Puels from marine biomass 25 p0C59 A80-17888 ROSEN, A. Aeroelastic stability and response of horizontal axis wind turbine blades 25 p0032 A80-13116 SACCO, S. B. ROSEB, G.
Are large concentration of atomic H storable in tritium-impregnated solid in H2 below 0.10 K
25 p0072 A80-18728 SADOWSKI, B. P. ROSEBBLUTH, M. N. Low-aspect-ratio limit of the toroidal reactor gasification atmosphere The spheromak 25 p0058 A80-17876 FE-2621-3] SAEUPPERER, H. ROSINI, D. A. Combustion of anthracite culm in a fluidized bed boiler of the nickel electrode 25 p0014 A80-11959 ROSS, R. T. SAHA. H. Efficiency of quantum-utilizing solar energy converters in the absence of intraband thermalization ROWE, A. P. The erosion/corrosion of small superalloy turbine rotors operating in the effluent of a PFB coal SAITO, Ta combustor 25 p0001 A80-10043 RUDLOFF, F. A.
Computer simulation results for planar reflectors and flat plate solar collectors
[ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559 RUKHADZE, A. A. Relativistic high-current microvave plasma electronics 25 p0C83 A80-19847 RUSSELL, G.
Heat flow meters for solar system performance SALEBPOUR. monitoring 25 p0022 A80-12608 RUSSELL, M. C. Optimization of photovoltaic/thermal collector heat pump systems [COC-4577-7] 25 p0124 N80-12566 RUSSO, A. J. User's manual for the magnetohydrodynamic generator channel code, MHDCHN [SAND-78-1260] United States 25 p0132 N80-12894 RUSSO, G.

The calculation of carbon load and axial profiles of oxygen concentration in the bed of a fluidized combustor

25 p0077 A80-19 25 p0077 A80-19421 RUTHERFORD, P. H. potential for use with gasoline Tearing modes in a plasma with magnetic braiding [HCP/T4101-03] 25 p0006 A80-11349 SALTONSTALL, R. Harnessing power from tides - State of the art
25 p0045 A80-16658 preliminary assessment [SERI/TR-51-159] RYASON, P. R. Continuous coal processing method and means [NASA-CASE-NPO-13758-2] 25 p0092 25 p0092 N80-10377 for tractor-trailer vehicles Automated longwall guidance and control systems, phase 1 [ NASA-CR-161329] 25 p0122 N80-12538 [PB-297947/4] RYCROPT, R. W. SALYBR, I. O. Energy from the West: Energy resource development systems report. Volume 1: Introduction and Energy storage for solar air conditioning applications utilizing a form-stable, high systems report. Volume 1: general social controls density polyethylene pellet bed [MLM-2598(OP)] [PB-299177/6] 25 p0152 N80-14463 25 p0113 N80-11603

Energy from the West: Energy resource development Ergy from the west. Inergy resource development systems report. Volume 2: Coal [PB-299178/4] 25 p0152 880-14464 Energy from the West: Energy resource development systems report. Volume 3: Oil shale
[FB-299179/2] 25 p0152 N80-1444
Energy from the West: Energy resource development
systems report. Volume 4: Uranium 25 p0.152 N80-14465 [PB-299180/0] 25 p0152 N80-144 Energy from the West: Energy resource development systems report. Volume 5: Oil and natural gas 25 p0152 N80-14466 and natural gas 25 p0152 N80-14467 Energy from the West: Energy resource development systems report. Volume 6: Geothermal 25 p0152 N80-14468 Methane fermentation of aquatic biomass 25 p0043 A80-16148 25 p0045 A80-16656 Description of the MIT/Lincoln Laboratory photovoltaic systems test facility
25 p0178 N80-15638 Evaluation of high chromium overplays to protect less alloyed substrates from corrosion in a coal .25 p0119 N80-12163 Improvement of the high-rate discharge behaviour 25 p0010 A80-11841 Electrochemical storage of photovoltaic solar energy 25 p0025 A80-12757 Annealing and degradation studies of ceramic CdS solar cells 25 p0026 A80-12771 New approach for Vlasov equilibrium of a relativistic electron beam in a plasma medium 25 p0085 A80-20538 SAKAGUCHI, T.
Studies on carbon dioxide cycles for power generation. I - Fundamental condensation cycles
25 p0083 A80-19716 SAKATA, T.

Hydrogen evolution from water using solid carbon and light energy 25 p0032 A80-13109 A simplified procedure for performance of solar systems with heat pumps [ASME PAPEE 79-WA/SOL-23] 25 p0065 A80-25 p0065 A80-18555 SALIN, B.

MeV cluster ion beam diagnostics by means of calorimetry and time-of-flight spectroscopy

25 p0080 A80-19612 SALMON, R. Recent developments in coal liquefaction in the 25 p0015 A80-11966 Economics of gasoline production from underground coal gasification via mobil-H process
[CONF-790405-12] 25 p0106 M80-11 25 p0106 N80-11246 SALO, D. J.
Biomass-based alcohol fuels: The near-term 25 p0093 N80-10393 Implementation of state solar incentives: A 25 p0.158 N80-14520 SALTZMAN, B. J.

Reduction of aerodynamic drag and fuel consumption 25 p0046 A80-16948 SALVESEN, K. G.
Technical assessment of thermal DeNOx process 25 p0117 N80-11656

ALZABO, P. J.	S	CHAEPER, A. O.	
Hydrogen-halogen energy storage system		Program to discover materials su	
	139 N80-13632	under hostile conditions obtai	ning in equipment
AMMELLS, A. P.		for the gasification of coal a	
A performance and current distribution m		[FE-1784-42]	25 p0106 N80-11248
scaled-up molten carbonate fuel cells	)62 A80-18213	CHARTZLE, W. J. A solar energy system with annua	l agnifer storage
Influence of electrolyte composition on		[ASME PAPER 79-WA/SOL-30]	25 p0066 A80-18560
kinetics in the molten carbonate fuel		Heat pump centered integrated co	
[CONF-781063-2] . 25 p01	115 N80-11615	systems: Systems development	mmunity energy
Prediction of current distribution in a		[ANL/ICES-TM-30]	25 p0173 N80-15588
carbonate fuel cell		CHARLACK, R. S.	•
	175 N80-15613	The optimal design of solar cell	grid lines
SAMPATH, V.			25 p0005 A80-11335
A performance and current distribution m	odel for S	CHECHTER, R. S.	
scaled-up molten carbonate fuel cells		Tertiary oil recovery processes	research at the
	062_A80-18213	University of Texas	25 2422 222 44544
Prediction of current distribution in a		[BETC-0001-1]	25 p0108 N80-11544
carbonate fuel cell		CHEININE, A.	ssembly tack for
	175 N80-15613	Phase 2 of the array automated a the low cost silicon solar arr	
SAMUEL, A. A.	1-n+	[NASA-CR-162426]	25 p0110 N80-11565
A parametric study of solar thermal power		CHEPPELE, S. B.	25 polito mod 11505
SAMUBLS, G.	724 800 12733	Characterization of coal-derived	liquids and other
Geopressure energy resource evaluation	•	fossil fuel related materials	
[ORNL/PFA-79/2] 25 p01	138 N80-13605	spectrometry. Mass spectromet	
SAMUELS, D.		fossil-energy conversion techn	
Devonian paleocurrents of the Applachian	a basin	[FE-2537-7]	25 p0120 N80-12198
	149 N80-13735 S	CHERZER, B. M. U.	
SAMORIN, N. A.		Spatial and depth distribution o	
Preliminary design of axial flow hydroca		oxygen, and limiter materials	on the liner of
turbine/generator set for geothermal		TFR 400	25 -0002 400 40002
	160 N80-14536		25 p0082 A80-19682
SANDERA, J.		CHILLER, T. G.	rmanco porification
High-efficiency alkaline accumulator with	th Cadmium	Integral cell scale-up and perfo [EPRI-EM-1134]	25 p0141 N80-13646
mass treated with oxalic acid	010 A80-11842 S	SCHILLING, HD.	25 po 141 Rec 15040
SAMPILIPPO, G. P.	710 800 11042 5	The role of coal gasification an	d liquefaction in
Oil recovery by carbon dioxide injection	n	improving the efficiency of en	
[ORO-5301-34] 25 p0	108 N80-11545	Comparative end use efficiency	
SANTINI, D. J.		coal: Substitute natural gas a	nd other gases
Distribution and classification of local	1	versus electric power producti	on
socio-economic impacts from energy de	velopment		25 p0030 A80-12941
1.CONT. 200491-13 25 p0:	4CC NOO 480EB C	CUTUR O B	
[CONF-790481-1] 25 p0	166 N80-14954 S	SCHINK, G. R.	
SANTORO, R. T.	100 100-14934 2	Wharton annual energy model: De	velopment and
SANTORO, R. T. The Elmo Bumpy Torus /EBT/ reactor		Wharton annual energy model: De simulation results	
SABTORO, R. 1. The Elmo Bumpy Torus /EBT/ reactor 25 p0	058 A80-17883	Wharton annual energy model: De simulation results [EPRI-EA-1115]	velopment and 25 p0175 N80-15606
SANTORO, R. 1. The Elmo Bumpy Torus /EBT/ reactor 25 p0:	058 A80-17883 S	Wharton annual energy model: De simulation results [EPRI-EA-1115] SCHIPPER, L.	25 p0175 N80-15606
SABTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0: SABRADIN, J.  Hydrogen /Hydride/-air secondary batter;	058 A80-17883 S	Wharton annual energy model: De simulation results [EPRI-BA-1115] SCHIPPER, L. Another look at energy conservat	25 p0175 N80-15606
SABTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0  SABRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0	058 A80-17883 S	Wharton annual energy model: De simulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893]	25 p0175 N80-15606 ion 25 p0097 N80-10611
SABTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0  SASAKI, B.	058	Wharton annual energy model: De simulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envi	25 p0175 N80-15606 ion 25 p0097 N80-10611
SANTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0  SASAKI, B.  Activity tests of various catalysts for	058 A80-17883 S 9 011 A80-11848	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envior complement	25 p0175 N80-15606 ion 25 p0097 N80-10611
SANTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high	058 &80-17883 y 011 &80-11848 h pressure	Wharton annual energy model: De simulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envi	25 p0175 N80-15606 ion . 25 p0097 N80-10611 ronment: conflict
SABTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis	058 &80-17883 y 011 &80-11848 h pressure	Wharton annual energy model: De simulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LEL-7893] Energy conservation and the envior complement [LEL-7882]	25 p0175 N80-15606 ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621
SARTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor 25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis 25 p0	058 &80-17883 S 011 &80-11848 h fressure	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envior complement [LBL-7882] SCHIDL, H.	25 p0175 N80-15606 25 p0097 N80-10611 conment: conflict 25 p0098 N80-10621
SABTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis	058 A80-17883 9 011 A80-11848 h fressure 019 A80-12244	Wharton annual energy model: Desimulation results [EPRI-BA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envior complement [LBL-7882] SCHMIDL, H. Spatial and depth distribution of	25 p0175 N80-15606 ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621 of deuterium, on the liner of
SABTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0  SASAKI, B.  Activity tests of various catalysts for  hydrocracking of coal by means of high differential thermal analysis  25 p0  SASSIN, W.  Energy and climate: A review with emph global interactions	058 A80-17883 y 011 A80-11848 h fressure 019 A80-12244 asis on	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envior complement [LBL-7882] SCHNIDL, H. Spatial and depth distribution or cygen, and limiter materials TTR 400	25 p0175 N80-15606 25 p0097 N80-10611 conment: conflict 25 p0098 N80-10621
SANTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  25 p0  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0	058 A80-17883 y 011 A80-11848 h fressure 019 A80-12244 asis on	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHMIDL, H. Spatial and depth distribution or oxygen, and limiter materials TFR 400 SCHMITT, R.	25 p0175 N80-15606 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621 of deuterium, on the liner of 25 p0082 A80-19682
SANTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0:  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0:  SASAKI, H.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0:  SATHIAHARATABA, S.	058 A80-17883 9 011 A80-11848 h fressure 019 A80-12244 asis on 131 N80-12677	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envior complement [LBL-7882] SCHNIDL, H. Spatial and depth distribution or oxygen, and limiter materials TFR 400 SCHNITT, R. Improvement of the high-rate dis	25 p0175 N80-15606 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621 of deuterium, on the liner of 25 p0082 A80-19682
SABTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  25 p0  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0  SATHYAHARAYABA, S. Cadmium electrodes with improved surface	058 A80-17883 y 011 A80-11848 h fressure 019 A80-12244 asis on 131 N80-12677	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHMIDL, H. Spatial and depth distribution or oxygen, and limiter materials TFR 400 SCHMITT, R.	25 p0175 N80-15606  25 p0097 N80-10611  25 p0098 N80-10621  25 p0098 N80-10621  25 deuterium,  25 p0082 A80-19682  36 charge behaviour
SANTONO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0  SATHYANARAYABA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage	058 A80-17883 y 011 A80-11848 h fressure 019 A80-12244 asis on 131 M80-12677 S c tatteries	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L.  Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHMIDL, H.  Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHMITT, R.  Improvement of the high-rate dis of the nickel electrode	25 p0175 N80-15606 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621 of deuterium, on the liner of 25 p0082 A80-19682
SANTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0:  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0:  SASAKI, H.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  25 p0:  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0  SATHIAHARATABA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 M80-12677  c tatteries	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envior complement [LBL-7882] SCHNIDL, H. Spatial and depth distribution or oxygen, and limiter materials TFR 400 SCHNITT, R. Improvement of the high-rate disof the nickel electrode SCHNITT, W. R.	25 p0175 N80-15606  ion 25 p0097 N80-10611  ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841
SABTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0:  SABRADIN, J.  Hydrogen /Hydride/-air secondary batter 25 p0:  SASAKI, H.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  25 p0:  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0  SATHIAHARATABA, S.  Cadmium electrodes with improved surface characteristics for alkaline storage 25 p0  SATO, S.	058 A80-17883 9 011 A80-11848 h pressure 019 A80-12244 asis on 131 N80-12677 selatteries 009 A80-11838	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L.  Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHMIDL, H.  Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHMITT, R.  Improvement of the high-rate dis of the nickel electrode	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682 scharge behaviour 25 p0010 A80-11841
SABTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0:  SABRADIN, J.  Hydrogen /Hydride/-air secondary batter 25 p0:  SASAKI, H.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  25 p0:  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0  SATHIAHARATABA, S.  Cadmium electrodes with improved surface characteristics for alkaline storage 25 p0  SATO, S.	058 A80-17883 9 011 A80-11848 h pressure 019 A80-12244 asis on 131 N80-12677 selatteries 009 A80-11838	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHMIDL, H. Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHMITT, R. Improvement of the high-rate dis of the nickel electrode SCHMITT, W. R. Ocean energy - Forms and prospec	25 p0175 N80-15606  ion 25 p0097 N80-10611  ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841
The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Bydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0  SATHYANARAYANA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production 25 p0	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 M80-12677  c hatteries 009 A80-11838	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envior complement [LBL-7882] SCHNIDL, H. Spatial and depth distribution or oxygen, and limiter materials TFR 400 SCHNITT, R. Improvement of the high-rate disof the nickel electrode SCHNITT, W. R. Ocean energy - Forms and prospects	25 p0175 N80-15606  ion 25 p0097 N80-10611 conment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  icharge behaviour 25 p0010 A80-11841  its 25 p0061 A80-18162
The Elmo Bumpy Torus /EBT/ reactor  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0 of the polymer of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emphysicable interactions  SATHYAHARAYAHA, S.  Cadmium electrodes with improved surfact characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production  SATTABOV, D. K.	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 N80-12677  c tatteries 009 A80-11838  S 052 A80-17578	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHMIDL, H. Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHMITT, R. Improvement of the high-rate dis of the nickel electrode SCHMITT, W. R. Ocean energy - Forms and prospec	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841  its 25 p0061 A80-18162
The Elmo Bumpy Torus /EBT/ reactor  25 p0  SABRRADIN, J.  Hydrogen /Hydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  SATHYANARAYABA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production  SATTABOV, D. K. Development of optical waveguides for a	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 N80-12677  c tatteries 009 A80-11838  S 052 A80-17578	Wharton annual energy model: Desimulation results [EPRI-BA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envior complement [LBL-7882] SCHNIDL, H. Spatial and depth distribution oxygen, and limiter materials TFR 400 SCHNITT, R. Improvement of the high-rate disof the nickel electrode SCHNITT, W. R. Ocean energy - Forms and prospects SCHNAPER, G. H. Corrosion protection of solar-co	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841  its 25 p0061 A80-18162
SARTORO, R. 1.  The Elmo Bumpy Torus /EBT/ reactor  25 p0:  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter  25 p0:  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  25 p0:  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0:  SATHIBHARATABA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0:  SATO, S.  Thermochemical hydrogen production  25 p0:  SATTABOV, D. K. Development of optical waveguides for a power-related application	058 A80-17883  7 011 A80-11848  h pressure 019 A80-12244  asis on 131 N80-12677  chatteries 009 A80-11838  5 052 A80-17578	Wharton annual energy model: Desimulation results [EPRI-BA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envior complement [LBL-7882] SCHNIDL, H. Spatial and depth distribution ocygen, and limiter materials TFR 400 SCHNITT, E. Improvement of the high-rate disof the nickel electrode SCHNITT, W. R. Ocean energy - Forms and prospects SCHNAPBE, G. H. Corrosion protection of solar-coerchangers with electrochemical [COO-4297-1] SCHNEIDER, S. B.	25 p0175 N80-15606  ion 25 p0097 N80-10611  ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841  ets 25 p0061 A80-18162  oliector heat ally deposited films 25 p0171 N80-15569
The Elmo Bumpy Torus /EBT/ reactor  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  SATHYANARAYABA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production  SATTABOV, D. K. Development of optical waveguides for a power-related application  25 p0  SAUCER, K.	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 N80-12677  c tatteries 009 A80-11838  052 A80-17578  S 036 A80-14596	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHNIDL, H. Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHNITT, R. Improvement of the high-rate dis of the nickel electrode SCHNITT, W. R. Ocean energy - Forms and prospect SCHNAPER, G. H. Corrosion protection of solar-co exchangers with electrochemica [C00-4297-1]	25 p0175 N80-15606  25 p0097 N80-10611  25 p0098 N80-10621  25 p0098 N80-10621  25 p0082 A80-19682  35 charge behaviour  25 p0010 A80-11841  25 p0061 A80-18162  26 plector heat  27 p0171 N80-15569  28 energy systems
The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Bydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0  SATHIABARAYABA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production 25 p0  SATTABOV, D. K. Development of optical waveguides for a power-related application  25 p0  SAUBE, K. Wave absorption and superreflectivity o	058 A80-17883  y 011 A80-11848  h pressure 019 A80-12244  asis on 131 N80-12677  c hatteries 009 A80-11838  052 A80-17578  5 036 A80-14596  f laser	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHHIDL, H. Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHHITT, R. Improvement of the high-rate dis of the nickel electrode SCHHITT, W. R. Ocean energy - Forms and prospect SCHNAPER, G. H. Corrosion protection of solar-co exchangers with electrochemica [COO-4297-1] SCHNEIDER, S. H. Comparative risk assessment of e	25 p0175 N80-15606  ion 25 p0097 N80-10611  ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841  ets 25 p0061 A80-18162  oliector heat ally deposited films 25 p0171 N80-15569
The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter 25 p0  SASAKI, H.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0  SATHIAHARATABA, S.  Cadmium electrodes with improved surfact characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production  25 p0  SATTABOV, D. K.  Development of optical waveguides for a power-related application 25 p0  SAUER, K.  Wave absorption and superreflectivity o plasmas due to electromagnetic struct	058 A80-17883  y 011 A80-11848  h pressure 019 A80-12244  asis on 131 N80-12677  c hatteries 009 A80-11838  052 A80-17578  5 036 A80-14596  f laser	Wharton annual energy model: Desimulation results [EPRI-BA-1115] SCHIPPER, L.  Another look at energy conservat [LBL-7893] Energy conservation and the envior complement [LBL-7882] SCHNIDL, H.  Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHNITT, R.  Improvement of the high-rate distoft the nickel electrode SCHNITT, W. R.  Corrosion protection of solar-coerchangers with electrochemical [COO-4297-1] SCHNIDER, S. H.  Comparative risk assessment of essentials of the second comparative risk assessment of essentials.	25 p0175 N80-15606  ion 25 p0097 N80-10611  ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841  ets 25 p0061 A80-18162  ollector heat cly deposited films 25 p0171 N80-15569  energy systems 25 p0049 A80-17139
The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  SATHYANARAYABA, S. Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production  25 p0  SATTABOV, D. K. Development of optical waveguides for a power-related application  25 p0  SAUER, K. Wave absorption and superreflectivity o plasmas due to electromagnetic struct resonances	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 M80-12677  chatteries 009 A80-11838  052 A80-17578  5 036 A80-14596  f laser ure	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L.  Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHIDL, H.  Spatial and depth distribution of oxygen, and limiter materials TFR 400  SCHNITT, R.  Improvement of the high-rate dis of the nickel electrode  SCHNITT, W. R.  Ocean energy - Forms and prospect SCHNAPER, G. H.  Corrosion protection of solar-co exchangers with electrochemica [COO-4297-1] SCHNEIDER, S. H.  Comparative risk assessment of exchoragers with electrochemica [COO-4297-1] SCHNEIDER, S. H.  Comparative risk assessment of exchoragers with electrochemical exchangers with electrochemical country of the property of th	25 p0175 N80-15606  25 p0097 N80-10611  25 p0098 N80-10621  25 p0098 N80-10621  25 p0082 A80-19682  35 charge behaviour  25 p0010 A80-11841  25 p0061 A80-18162  21 lector heat  22 p0171 N80-15569  23 energy systems  25 p0049 A80-17139  25 energy systems  26 p0049 A80-17139
The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Bydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0  SATHIABARAYABA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production 25 p0  SATTABOV, D. K. Development of optical waveguides for a power-related application  SAUBE, K.  Wave absorption and superreflectivity o plasmas due to electromagnetic struct resonances  25 p0	058 A80-17883  y 011 A80-11848  h pressure 019 A80-12244  asis on 131 N80-12677  c hatteries 009 A80-11838  052 A80-17578  5 036 A80-14596  f laser	Wharton annual energy model: Desimulation results [EPRI-BA-1115] SCHIPPER, L.  Another look at energy conservat [LBL-7893] Energy conservation and the envior complement [LBL-7882] SCHNIDL, H.  Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHNITT, R.  Improvement of the high-rate distoft the nickel electrode SCHNITT, W. R.  Corrosion protection of solar-coerchangers with electrochemical [COO-4297-1] SCHNIDER, S. H.  Comparative risk assessment of essentials of the second comparative risk assessment of essentials.	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621  if deuterium, on the liner of 25 p0082 A80-19682  icharge behaviour 25 p0010 A80-11841  its 25 p0061 A80-18162  illector heat illy deposited films 25 p0171 N80-15569  energy systems 25 p0049 A80-17139  iematical models in and gasification
The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0  SATHYAHARATABA, S.  Cadmium electrodes with improved surfactor acteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production  25 p0  SATTABOV, D. K. Development of optical waveguides for a power-related application  SAUBER, K.  Wave absorption and superreflectivity o plasmas due to electromagnetic struct resonances  SAUNDERS, N. T.	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 M80-12677  c tatteries 009 A80-17578  036 A80-17578  f laser ure 057 A80-17871	Wharton annual energy model: Desimulation results [EPRI-BA-1115] SCHIPPER, L.  Another look at energy conservat [LEL-7893] Energy conservation and the envior complement [LBL-7882] SCHMIDL, H.  Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHMITT, R.  Improvement of the high-rate distoft the nickel electrode  SCHMITT, W. R.  Corrosion protection of solar-complement with electrochemical [COO-4297-1] SCHNIDER, S. H.  Comparative risk assessment of escholars, S. H.  Experimental techniques and mather the study of waste pyrolysis as	25 p0175 N80-15606  25 p0097 N80-10611  25 p0098 N80-10621  25 p0098 N80-10621  25 p0082 A80-19682  35 charge behaviour  25 p0010 A80-11841  25 p0061 A80-18162  21 lector heat  22 p0171 N80-15569  23 energy systems  25 p0049 A80-17139  25 energy systems  26 p0049 A80-17139
The Elmo Bumpy Torus /EBT/ reactor  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  SATHYANARAYABA, S. Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production  25 p0  SATTABOV, D. K. Development of optical waveguides for a power-related application  SATUBER, K. Wave absorption and superreflectivity o plasmas due to electromagnetic struct resonances  SAUNBERS, N. T. Aircraft Energy Efficiency (ACEE) statu	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 M80-12677  chatteries 009 A80-11838  052 A80-17578  \$ 036 A80-14596  f laser ure  057 A80-17871  s report	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L.  Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHIDL, H.  Spatial and depth distribution of oxygen, and limiter materials TFR 400  SCHNITT, R.  Improvement of the high-rate dis of the nickel electrode  SCHNITT, W. R.  Corrosion protection of solar-co exchangers with electrochemica [COO-4297-1] SCHNEIDER, S. H.  Comparative risk assessment of electrostemical conditions of the study of waste pyrolysis as SCHOOLEY, F. A.	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841  its 25 p0061 A80-18162  ollector heat illy deposited films 25 p0171 N80-15569 energy systems 25 p0049 A80-17139 dematical models in and gasification 25 p0001 A80-10028
The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Bydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emphaglobal interactions  SATHYANARAYANA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production  25 p0  SATTABOV, D. K. Development of optical waveguides for a power-related application  SATUBER, K.  Wave absorption and superreflectivity o plasmas due to electromagnetic struct resonances  25 p0  SAUNDERS, N. T. Aircraft Energy Efficiency (ACCE) statu.	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 M80-12677  c tatteries 009 A80-17578  036 A80-17578  f laser ure 057 A80-17871	Wharton annual energy model: Desimulation results [EPRI-BA-1115] SCHIPPER, L.  Another look at energy conservat [LEL-7893] Energy conservation and the envior complement [LBL-7882] SCHMIDL, H.  Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHMITT, R.  Improvement of the high-rate distoft the nickel electrode  SCHMITT, W. R.  Corrosion protection of solar-complement with electrochemical [COO-4297-1] SCHNIDER, S. H.  Comparative risk assessment of escholars, S. H.  Experimental techniques and mather the study of waste pyrolysis as	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841  tts 25 p0061 A80-18162  ollector beat ally deposited films 25 p0171 N80-15569  energy systems 25 p0049 A80-17139  dematical models in and gasification 25 p0001 A80-10028
The Elmo Bumpy Torus /EBT/ reactor  25 p0  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  25 p0  SATHYANARATABA, S.  Cadmium electrodes with improved surfactoracteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production  25 p0  SATTABOV, D. K.  Development of optical waveguides for a power-related application  SAUBER, K.  Wave absorption and superreflectivity o plasmas due to electromagnetic struct resonances  SAUNDERS, N. T. Aircraft Energy Efficiency (ACEE) statu 25 p0  SAVERY, C. W.	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 M80-12677  chatteries 009 A80-11838  052 A80-17578  \$ 036 A80-14596  f laser ure  057 A80-17871  s report	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHIDL, H. Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHNITT, R. Improvement of the high-rate dis of the nickel electrode SCHNITT, W. R. Ocean energy - Forms and prospect SCHNITT, W. R. Corrosion protection of solar-co exchangers with electrochemica [COO-4297-1] SCHNEIDER, S. H. Comparative risk assessment of exchangers with electrochemica [SCHORTERS, J. G. R. Experimental techniques and math the study of waste pyrolysis as SCHOOLEY, P. A. Mission analysis for the Federal	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841  tts 25 p0061 A80-18162  ollector beat ally deposited films 25 p0171 N80-15569  energy systems 25 p0049 A80-17139  dematical models in and gasification 25 p0001 A80-10028
The Elmo Bumpy Torus /EBT/ reactor  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  SATHYANARAYANA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production  SATTABOV, D. K. Development of optical waveguides for a power-related application  SAUBER, K.  Wave absorption and superreflectivity o plasmas due to electromagnetic struct resonances  SAUBERS, N. T. Aircraft Energy Efficiency (ACEE) statu 25 p0  SAVERY, C. W. Double-exposure collector system	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 M80-12677  chatteries 009 A80-11838  052 A80-17578  \$ 036 A80-14596  f laser ure  057 A80-17871  s report	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L.  Another look at energy conservat [LEL-7893] Energy conservation and the envior complement [LBL-7882] SCHMIDL, H.  Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHMITT, R.  Improvement of the high-rate distofthe nickel electrode SCHMITT, W. R.  Corrosion protection of solar-complements with electrochemical [COO-4297-1] SCHNIDER, S. H.  Comparative risk assessment of escholars, S. H.  Experimental techniques and mathematical the study of waste pyrolysis as SCHOLEY, F. A.  Mission analysis for the Federal biomass program. Volume 3: I	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841  tts 25 p0061 A80-18162  ollector beat ally deposited films 25 p0171 N80-15569  energy systems 25 p0049 A80-17139  dematical models in and gasification 25 p0001 A80-10028
The Elmo Bumpy Torus /EBT/ reactor  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter: 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emphysication characteristics for alkaline storage 25 p0  SATHYANARATABA, S.  Cadmium electrodes with improved surfactoracteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production 25 p0  SATTABOV, D. K.  Development of optical waveguides for a power-related application 25 p0  SAUBER, K.  Wave absorption and superreflectivity of plasmas due to electromagnetic struct resonances 25 p0  SAUNDERS, N. T.  Aircraft Energy Efficiency (ACEE) statu 25 p0  SAVERY, C. W.  Double-exposure collector system [TID-28964] 25 p0  SBITHEROVA, I. S.	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 M80-12677  e tatteries 009 A80-17578  036 A80-17578  \$ 036 A80-17578  \$ c f laser ure \$ c57 A80-17871  \$ report 091 N80-10206  127 N80-12593	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L.  Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHMIDL, H.  Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHMITT, B.  Improvement of the high-rate dis of the nickel electrode  SCHMITT, W. R.  Ocean energy - Forms and prospect SCHMITT, W. R.  Corrosion protection of solar-co exchangers with electrochemica [COO-4297-1] SCHOETERS, J. G. E.  Experimental techniques and math the study of waste pyrolysis at SCHOOLEY, P. A.  Mission analysis for the Federal biomass program. Volume 3: I availability [SAN-0115-T1] SCHOWEREL, R. L.	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841  its 25 p0061 A80-18162  ollector heat illy deposited films 25 p0171 N80-15569 energy systems 25 p0049 A80-17139 dematical models in and gasification 25 p0001 A80-10028  fuels from eeedstock
The Elmo Bumpy Torus /EBT/ reactor  SARRADIN, J.  Hydrogen /Hydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  SATHYANARAYBA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production  SATTABOV, D. K.  Development of optical waveguides for a power-related application  SAUBER, K.  Wave absorption and superreflectivity o plasmas due to electromagnetic struct resonances  SAUBERS, N. T.  Aircraft Energy Efficiency (ACEE) statu 25 p0  SAVERY, C. W.  Double-exposure collector system [TID-28964]  SEUTHIKOVA, I. S. Current equilibrium and effective ion c	058 A80-17883  y 011 A80-11848  h fressure 019 A80-12244  asis on 131 M80-12677  e tatteries 009 A80-17578  036 A80-17578  \$ 036 A80-17578  \$ c f laser ure \$ c57 A80-17871  \$ report 091 N80-10206  127 N80-12593	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L.  Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHMIDL, H.  Spatial and depth distribution of oxygen, and limiter materials TFR 400  SCHMITT, B.  Improvement of the high-rate dis of the nickel electrode  SCHMITT, W. B.  Corrosion protection of solar-core exchangers with electrochemica [COO-4297-1] SCHNEIDER, S. H.  Comparative risk assessment of es SCHOLER, S. G. B. Experimental techniques and math the study of waste pyrolysis as SCHOLER, F. A.  Mission analysis for the Federal biomass program. Volume 3: In availability [SAN-0115-T1] SCHOMEBEL, B. L. Analysis of hydrogen in solids	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841  its 25 p0061 A80-18162  ollector beat illy deposited films 25 p0171 N80-15569 energy systems 25 p0049 A80-17139 dematical models in and gasification 25 p0001 A80-10028  fuels from eedstock 25 p0168 N80-15276
The Elmo Bumpy Torus /EBT/ reactor  SARRADIN, J.  Hydrogen /Bydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  SATHIABARAYABA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production 25 p0  SATTABOV, D. K. Development of optical waveguides for a power-related application  SAUBER, K.  Wave absorption and superreflectivity o plasmas due to electromagnetic struct resonances  SAUBBES, N. T. Aircraft Energy Efficiency (ACEE) statu 25 p0  SAVERY, C. W. Double-exposure collector system [TID-28964] 25 p0  SBITNIKOVA, I. S. Current equilibrium and effective ion c L-2 stellarator plasma	058 A80-17883  y 011 A80-11848  h pressure 019 A80-12244  asis on 131 N80-12677  c Patteries 009 A80-11838  052 A80-17578  \$ 036 A80-17578  \$ c 1 aser ure \$ 057 A80-17871  \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHNIDL, H. Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHNITT, R. Improvement of the high-rate dis of the nickel electrode SCHNITT, W. R. Ocean energy - Forms and prospect SCHNITT, W. R. Corrosion protection of solar-co exchangers with electrochemica [COO-4297-1] SCHNEIDER, S. B. Comparative risk assessment of electromatics SCHOLERS, J. G. R. Experimental techniques and math the study of waste pyrolysis at SCHOOLEY, F. A. Mission analysis for the Federal hiomass program. Volume 3: In availability [SAN-0115-T1] SCHOWEBEL, R. L. Analysis of hydrogen in solids [DOE/ER-0026]	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621  of deuterium, on the liner of 25 p0082 A80-19682  scharge behaviour 25 p0010 A80-11841  its 25 p0061 A80-18162  ollector heat illy deposited films 25 p0171 N80-15569 energy systems 25 p0049 A80-17139 dematical models in and gasification 25 p0001 A80-10028  fuels from eeedstock
The Elmo Bumpy Torus /EBT/ reactor  SARRADIN, J.  Hydrogen /Bydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  SATHIABARAYABA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production 25 p0  SATTABOV, D. K. Development of optical waveguides for a power-related application  SAUBER, K.  Wave absorption and superreflectivity o plasmas due to electromagnetic struct resonances  SAUBBES, N. T. Aircraft Energy Efficiency (ACEE) statu 25 p0  SAVERY, C. W. Double-exposure collector system [TID-28964] 25 p0  SBITNIKOVA, I. S. Current equilibrium and effective ion c L-2 stellarator plasma	058 A80-17883  y 011 A80-11848  h pressure 019 A80-12244  asis on 131 N80-12677  c Patteries 009 A80-11838  052 A80-17578  \$ 036 A80-17578  \$ c 1 aser ure \$ 057 A80-17871  \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L.  Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHMIDL, H.  Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHMITT, B.  Improvement of the high-rate dis of the nickel electrode  SCHMITT, W. R.  Ocean energy - Forms and prospect SCHMITT, W. R.  Corrosion protection of solar-co exchangers with electrochemica [COO-4297-1] SCHORTEDE, S. H.  Comparative risk assessment of exchangers with electrochemica SCHORTERS, J. G. B.  Experimental techniques and math the study of waste pyrolysis as SCHOOLEY, F. A.  Mission analysis for the Federal hiomass program. Volume 3: In availability [SAN-0115-T1] SCHOWEREL, R. L. Analysis of hydrogen in solids [DOE/EB-0026] SCHRATTENHOLZER, L.  SCHRATTENHOLZER, L.	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621 of deuterium, on the liner of 25 p0082 A80-19682 scharge behaviour 25 p0010 A80-11841 ets 25 p0011 A80-18162 ollector heat elly deposited films 25 p0171 N80-15569 energy systems 25 p0049 A80-17139 enematical models in and gasification 25 p0001 A80-10028 fuels from reedstock 25 p0168 N80-15276
The Elmo Bumpy Torus /EBT/ reactor  SARRADIN, J.  Hydrogen /Bydride/-air secondary batter 25 p0  SASAKI, B.  Activity tests of various catalysts for hydrocracking of coal by means of high differential thermal analysis  SASSIN, W.  Energy and climate: A review with emph global interactions  SATHIABARAYABA, S.  Cadmium electrodes with improved surfac characteristics for alkaline storage 25 p0  SATO, S.  Thermochemical hydrogen production 25 p0  SATTABOV, D. K. Development of optical waveguides for a power-related application  SAUBER, K.  Wave absorption and superreflectivity o plasmas due to electromagnetic struct resonances  SAUBBES, N. T. Aircraft Energy Efficiency (ACEE) statu 25 p0  SAVERY, C. W. Double-exposure collector system [TID-28964] 25 p0  SBITNIKOVA, I. S. Current equilibrium and effective ion c L-2 stellarator plasma	058 A80-17883  y 011 A80-11848  h pressure 019 A80-12244  asis on 131 N80-12677  c Patteries 009 A80-11838  052 A80-17578  \$ 036 A80-17578  \$ c 1 aser ure \$ 057 A80-17871  \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Wharton annual energy model: Desimulation results [EPRI-EA-1115] SCHIPPER, L. Another look at energy conservat [LBL-7893] Energy conservation and the envi or complement [LBL-7882] SCHNIDL, H. Spatial and depth distribution of oxygen, and limiter materials TFR 400 SCHNITT, R. Improvement of the high-rate dis of the nickel electrode SCHNITT, W. R. Ocean energy - Forms and prospect SCHNITT, W. R. Corrosion protection of solar-co exchangers with electrochemica [COO-4297-1] SCHNEIDER, S. B. Comparative risk assessment of electromatics SCHOLERS, J. G. R. Experimental techniques and math the study of waste pyrolysis at SCHOOLEY, F. A. Mission analysis for the Federal hiomass program. Volume 3: In availability [SAN-0115-T1] SCHOWEBEL, R. L. Analysis of hydrogen in solids [DOE/ER-0026]	25 p0175 N80-15606  ion 25 p0097 N80-10611 ronment: conflict 25 p0098 N80-10621 of deuterium, on the liner of 25 p0082 A80-19682 scharge behaviour 25 p0010 A80-11841 ets 25 p0011 A80-18162 ollector heat elly deposited films 25 p0171 N80-15569 energy systems 25 p0049 A80-17139 enematical models in and gasification 25 p0001 A80-10028 fuels from reedstock 25 p0168 N80-15276

SCHREIBER, R.		SEDMAK, M. B.	
Dependence of ideal MHD beta lim density and pressure profiles	its on current	Determination of the optimal sola decision criterion	r investment
	25 p0C54 A80-17790		25 p0021 A80-12437
SCHREIBER, P. Experimental verification of the thermochemical cycle for the p.		SERVIBAJ, V. Storage of solar heat by solid-li	quid phase change
hydrogen from water, ANL-4 [CONP-780807-11]	25 p0150 N80-14265	SEGASER, C. L. Survey of solar thermal energy st	25 p0024 A80-12755
SCHREIBER, M. Research guidance studies to asse	ess dasoline from	for thermal/electric application	ns
coal by methanol-to-gasoline a Pischer-Tropsch technologies	nd sasol-type	[ORNL/TM-5758] SEIBERT, M. Research overview of biological a	25 p0098 N80-10627
[PE-2447-13] SCHREYER, J. H.	25 p0093 N80-10388	conversion methods and identifi research areas for SERI	cation of key
Economy of a retrofit solar syst	em 25 p0017 A80-11984	[SERI/TR-33-067] SEIKEL, G. R.	25 p0115 N80-11617
SCHRIDER, L. A. Gas recovery from unconventional	Sources	Survey of MHD plant applications	25 -0045 -00
SCHRORDER, R. L.	25 p0014 A80-11958	SELDEN, A. C.	25 p0015 A80-11972
Resource recovery systems costs		Heating, confinement and fluctuat stellarator	ions in the CLFO
SCHUBLER, D. G.	25 p0001 A80-10029	SELHAN, J. R.	25 p0055 A80-17826
Status of the US Department of Esconcentrator development project		A performance and current distrib	ution model for
SCHUHNANN, R., JR.	25 p0172 N80-15578	scaled-up molten carbonate fuel	25 p0062 A80-18213
Sulfur fixation during coal gasi:	fication	Prediction of current distributio carbonate fuel cell	n in a molten
[PB-301104/6] SCHOLTE, S. C.	25 p0169 N80-15296	[CCNF-781063-1] SELVAGE, E. B. G.	25 p0175 N80-15613
User manual for GBOCITY: A compage of geothermal district heating compage.	st analysis	Correspondence between solar load passive water wall systems and	ratio method for f-Chart
[PNL-2742] SCHULTZ, R. J. Overview of geothermal energy in	25 p0113 N80-11605	performance estimates	25 p0029 480-12821
[CONF-790530-1] SCHUMANN, J. W.	25 p0102 N80-10661	Solar heating system performance sinusoidal inputs	
The electric trolley bus - Revis		SEEGUPTA, S.	25 p0061 A80-18130
SCHUNCK, J. P.	25 p0002 A80-10321	Annealing and degradation studies solar cells	of ceramic CdS
Efficient indium tin oxide/polyca solar cells	ystalline silicon	SEEGUPTA, U.	25 p0026 A80-12771
SCHUTZ, S. R.	25 p0039 A80-15136	Gals-electrolyte photovoltaic cel	
Residential on site solar heating	systems. A	SEPSI, C.	25 p0026 A80-12774
project evaluation using the capricing model		Fuel utilization in residences [EPBI-EA-894]	25 p0175 N80-15604
[LBL-8298] SCHWARTZ, M. W.	25 p0126 N80-12588	SERAPHIN, B. O. Stabilized CVD amorphous silicon	
Effect of mechanical energy stora characteristics of electric vel	nicles	temperature photothermal solar	energy conversion 25 p0087 A80-20722
[UCRL-82710] Assessment of the applicability of energy storage devices to elect	25 p0102 N80-10664 of mechanical	SESHADRI, C. V. Energy plantation for coromandel	
vehicles. Volume 1: Executive [UCRL-52773-VOL-1]	summary	SESNIC, S.	25 p0023 A80-12742
SCHWARTZ, S. R.	25 p0166 N80-14973	Accumulation of impurities and stail in the high-density regime of P	ability behaviour ulsator
A manual for cataloging and indep [LBL-4432-REV-1]	ring documents 25 p0118 N80-11946	SRTH, A. K.	25 p0054 A80-17759
SCHWARZ, P. C. Bi-directional four quadrant (BD)	)4) power	Transient rise of plate temperatu: collectors	re in solar
converter development			25 p0023 A80-12746
SCOTT, R. J.	25 p0154 N80-14480	SEUPERT, F. B. Wastewater treatment in coal conve	ersion
Ocean Thermal Energy Conversion configuration and integration,	OTEC) platform executive summary	[FB-297587/8] SEVIAN, W. A.	25 p0104 N80-10700
[DOE/ET-4064-1] SCOTTI, L. J.	25 p0128 N80-12600	Coal conversion technologies - So	me health and
Economics of Pullman Kellogg's ma FGD system	gnesium promoted	environmental effects	25 p0006 A80-11369
<del>-</del>	25 p0014 A80-11961	SEXTON, R. Ambient air measurements of petro	leum refinery
SBARCY, J. Q. Hazardous properties and environs	ental effects of	emissions	_
materials used in Solar Heating (SHAC) technologies: Interim b	and Cooling	SHAPPER, B. D. Status of the US Department of Fre	25 p0018 A80-11992
[DOF/EV-0028] SEAY, J. G.	25 p0163 N80-14565	concentrator development project	t .
LNG industry: An overview of pro [CONP-7811112-2]		SHALA, P. J.	25 p0172 N80-15578
SEBELIEN, K. B.	25 p0 168 N80-15278	A chromatographic peak profiling to interpretation and analysis of c	echnique for combustion
Assessment of synfuel transportat [PNL-2768]	ion to year 2000 25 p0092 N80-10382	processes [AIAA PAPER 80-0284]	25 p0063 A80-18291
SECHI, P. N. Analysis of S-band solid-state tr		SHAMSUNDAR, N.	
the solar power satellite [NASA-CE-160320]		Effectiveness - NTU charts for lat	
[ BADA-CA- 100320 ]	25 p0096 N80-10600	[ASME PAPER 79-WA/SOL-16]	25 p0066 A80-18561

PERSONAL AUTHOR INDEX SILLESEN, A. H.

SILLESEN, A. H.

Ablation of solid hydrogen in a plasma

25 p0154 N80-14483

SHANKER, D. Experimental investigation of various barrier metals for Schottky barrier and MOS solar cells 25 p0027 A80-12776 Optical and electrical investigations on annealed indium oxide selective coatings produced by spray pyrolysis 25 p0023 A80-12747 SHARMA, S. B.

Effect of thin oxide layer on the current voltage relations of Schottky barrier solar cells

25 p0026 A80-12772 Effect of image force on the characteristics of MOS solar cell 25 p0028 A80-12785 SHARP, L. E.

Heating, confinement and fluctuations in the CLEO stellarator 25 p0055 A80-17826 SHATFORD, P. A.

Heating, confinement and fluctuations in the CLEO

stellarator 25 p0 C55 A80-17826 SHCHUKIN, V. K.

Study of heat-pipe heat exchanger in the small gas
turbine engine system 25 p0091 N80-10022 SHEREEN, N. B.

Critical review and assessment of environmental and safety problems in hydrogen energy systems

[LA-7820-PR] 25 p0145 N80-13690 SHBLPÖK, B. Alternate cycles applied to ocean thermal energy conversion [SERI/TF-34-180] 25 p0172 N80-15571 [SERI/TE-34-100]
SHEN, C. N.

Operational and parameter studies of a solar-powered absorption cycle system with internal latent energy storages
[ASME PAPER 79-WA/SOL-27] 25 p0067 A80-18568
SHEN, E. S.

Decemberative process for desulfurization of high Regenerative process for desulfurization of high temperature combustion and fuel gases [BNI-50944] 25 p0134 N80-13 25 p0134 N80-13277 SHRN, Y. D. Preparation and properties of Au-/n/AlxGa1-xAs-/n/GaAs Schottky barrier solar cells 25 p0086 A80-20716 Calculations of inertial confinement fusion gains using a collective model for reheat, bremsstrahlung and fuel depletion for highly efficient electrodynamic laser compressions 25 p0058 A80-17875 SHET, U. S. P. A parametric study of solar thermal power plant 25 p0024 A80-12753 The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell -Characteristics and loss mechanisms The A-I/1-y/B-I/y/C-IIID-VI/2x/E-VI2/1-x/
pentenary alloy system and its application to
photovoltaic solar energy conversion 25 p0046 A80-16786 BHIAU, J. P.

Fiscal year 1978 experiences at TVA's Widows Creek unit 8 limestone scrubber

[ASME PAPER 79-WA/APC-10] 25 p0C71 A80-186 25 p0C71 A80-18623 SHIBL, A. A study of the solar LiBr dual cycle characteristics
[AIAA PAPER 80-0400] 25 p0077 A80-19327
SHIELDS, J. B. Preliminary design of axial flow hydrocarbon turbine/generator set for geothermal applications [EPRI-EE-513] 25 p0160 N80-14536 SHIBLDS, R. J.

Environmental assessment report: Solvent Refined Coal (SBC) systems [PB-300383/7] 25 p0179 N80-15676 HILLIDAY, T. S. Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska
[WASA-CR-162534] 25 p0154 N80-14

SHIMOJO, T.

New approach for Vlasov equilibrium of a relativistic electron beam in a plasma medium 25 p0085 A80-20538 SHIMOTAKE, H. Development of Li-Al/PeS cells with LiCl-rich electrolyte [CONF-7810135-21 SHINDRA, V.

Development of an aircraft-derivative gas turbine with high performance and large output

25 p0003 A80-10823 25 p0 176 N80-15614 SHITOV, V. K.
Energetics aspects of environmental protection
25 p0072 A80-18733 SHOGREN, R. K.

The 10MW(e) solar thermal central receiver pilot plant: Heliostat foundation and interface structure investigation

25 n0097 N80-1 [SAND-78-8180] 25 p0097 N80-10612 SHOTLAND, S.
Satellite Power System (SPS) preliminary societal assessment [ HCP/H4024-01/14] 25 p0101 N80-10657 SHROPSHIRE, J. A. Zinc-bromine battery studies 25 p0010 A80-11845 SHUKER, P. S. Development of silver-hydrogen cells 25 p0010 A80-11843 Theory of cavitons in laser-irradiated plasmas 25 p0057 a80-17872 Transverse particle losses in axially asymmetrical open traps 25 p0055 A80-17840 SICHEL, B. K.
Textured silicon - A selective absorber for solar 25 p0034 A80-13980 Materials for solar thermal conversion [COO-4557-1] 25 p0143 N80-13670 SICILIANO, C. L. B.

Hot dry rock geothermal energy development program [LA-7807-HDR] 25 p0144 N80-13673 SIDLES, P. H.
Operational experience with drain-down solar systems
25 p0125 N80-12576 LIS-D-1003 SIDOB, L. B. Society and Aerospace Technology Workshop, Los Angeles, Calif., November 15, 1979, Proceedings 25 p0037 A80-14701 SIEBERS, D. L.
Solar thermal central receiver systems
[ASME PAPER 79-WA/HT-38] 25 p 25 p0070 A80-18596 SIEGEL, J. S. Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 SIEBON, R. B.

Recent developments in linear theta-pinch and laser-heated solenoid research 25 p0055 A80-17825 SIEMSEN, G.
The conversion of ethylene glycol with air in alkaline fuel cells

25 n0011 A8 25 p0011 A80-11850 SIEVERS, A. J. The spectral selectivity of conducting micromeshes 25 p0087 A80-20720 SIEWERDT, L. Developments for the high voltage test of pulsed superconducting coils 25 p0081 A80-19655 Experimental studies of interaction and transport processes in laser fusion 25 p0057 A80-17864 SIGHAR, D. J. High-beta tokamaks 25 p0054 A80-17789 SILBERSTRIM, S.
Coal conversion technologies - Some health and environmental effects 25 p0006 A80-11369

25 p0050 A80-17218

SILSBER, R. H.	SMAIL, H. B.
The spectral selectivity of conducting micromeshes 25 p0C87 A80-20720	Photovoltai Phase 1:
SIMMONS, D. R.	power sys
pesign of a small thermochemical receiver for solar thermal power	feedback [DCE/CS-3
25 p0005 A80-11338	SMALL, T. J.,
SIMMONS, G. A.	An evaluati residenti
<pre>Effect of off-design operation of MHD generators   on NO/x/ chemical kinetics</pre>	[ASME PAP
[AIAA PAPER 80-0254] 25 p0077 A80-19310	SHETANA, P. C.
SIMBORS, H. K. Annual review of energy. Volume 4	A home-size systems o
25 p0008 A80-11826	[ASME PAP
SIMPSON, C. E.  Heat loss reduction techniques for annular solar	SMITH, C. F., Characteriz
receiver designs	cells for
[SAND-78-1769] 25 p0111 N80-11581	Current-v
SIMPSON, J. G. Solar concentrator	10 ohm-cm of temper
[NASA-CASE-MFS-23727-1] 25 p0153 N80-14473	[NASA-TH-
SIMPSON, M. N.  The microbial production of methane from household	SMITH, G. B. The scope of
wastes - Fixed-bed anaerobic digestion	metal par
25 p0074 A80-18870	CM7MH 3 W
SIMS, C. T. Microstructural objectives for high-temperature	SMITH, J. M. Results of
alloys in advanced energy systems	Lewis H2-
25 p0002 A80-10306	[AIAA PAE Results of
SINGER, M. I. Commercialization strategy report for coal	Lewis H2-
liquefaction	[NASA-TH-
[TID-28846] 25 p0135 N80-13285 SINGH, R.	Effect of wagnetohy
The semiconductor-insulator-semiconductor /indium	(NASA-TH-
tin oxide on silicon/ solar cell - Characteristics and loss mechanisms	SMITH, M. EPA utility
25 p0006 A80-11368	December
SINGH, R. H.	[PB-29939
Using a fin with a parabolic concentrator 25 p0004 A80-10847	SMITH, M. C. Hot dry roo
SINGLETON, R. M.	[LA-7807-
X-ray measurement of laser fusion targets using least squares fitting	SMITH, M. P. Geothermal
25 p0060 A80-18110	general s
SIBHA, A.	NTIS data [NTIS/PS-
Temperature dependence of open-circuit photovoltage of a back-surface field	Geothermal
semiconductor junction	Engineer:
25 p0087 A80-20727 SINHA, R. C.	[NTIS/PS- SMITH, P. R.
Porecasting automobile fleet fuel efficiency	Superheate
25 p0002 A80-10324	concentra [ASME PAR
SITT, B. Work on laser interaction and implosion at Centre	National E
d'Etudes de Limeil	[ PB-2964
25 p0057 A80-17863 SKAGGS, R. L.	SMITH, R. G. Area load-:
Solar parabolic trough forming process	
[ALO-4158-1] 25 p0116 N80-11626 SKELLETT, S.	SMITHSON, J. 1 Commercial:
The design of a thin walled toroidal vacuum	liquefac
chamber for a large RFP experiment	[TID-288
25 p0 C82 A80-19676 SKLAREW, D. S.	Comparison
Analysis and simulated diagenesis of kerogen in a	system p
recent bottom mud from Mono Lake, California - A comparison with selected ancient kerogens	[ ASME PA SMULDERS, P.
25 p0085 A80-20378	The estima
SKOKOV, IU. V.	wind spe utilizat
High-voltage multijunction solar cell 25 p0035 A80-14593	
SLEMMONS, A.	SNELLING, R. Western en
The impact of a conceptual solar thermal electric conversion plant on regional meteorological	[PB-2992
conditions - A numerical study	SNOEBERGER, D
25 p0060 A80-18125	Identifica technolo
SLINM, W. G. N. Critique of the meteorological and air quality	Imperial
baseline monitoring program for the prototype	[UCRL-52 SNOW, R. C.

```
c concentrator application experiment.

A 150 kW photovoltaic concentrator tem for load-center applications with
                  into the utility grid
                                                25 p0145 N80-13688
                 4267/1]
                 TTT
                 on of thermal energy storage for
                 ial air conditioning applications
PER 79-WA/HT-31] 25 p0071
                                                25 p0071 A80-18631
                   solar-powered engine for cooling
                 of generation of electricity
PER 79-WA/SOL-34] 25 p0066 A80-18562
                 JR.
                 ation of three types of silicon solar
                 SEPS deep space missions. Volume 1: oltage characteristics of OCLI BSP/BSR, and BSR 2 ohm-cm cells as a function
                  ature and intensity
                                                25 p0171 N80-15562
                 78253]
                 of effective medium theory for fine ticle solar absorbers
                                                25 p0029 A80-12835
                  duct area ratio changes in the NASA
                  02 combustion MHD experiment
                 PER 80-0023] 25 p0063 A80-18243
duct area ratio changes in the NASA
                 O2 combustion MHD experiment
                 79308]
                                                 25 p0132 N80-12881
                 velocity overshoot on the performance of
ydrodynamic subsonic diffusers
                 79305]
                                                 25 p0166 N80-14922
                 y FGD (Flue Gas Desulfurization) survey:
1978 - January 1979
                                                 25 p0179 N80-15682
                 ck geothermal energy development program
-HDR] 25 p0144 %80-13673
                 energy. Part 3: Technology and
studies, volume 3. Citations from the
                 a base
                 -79/0816/3]
                                                 25 p0148 N80-13717
                 energy, volume 3. Citations from the ing Index data base -79/0818/9] 25 p0148 N80-1:
                                                 25 p0148 N80-13718
                 d steam generation in a Fresnel lens
ating collector
PER 79-WA/SOL-21] 25 p0067 A80-
                                                 25 p0067 A80-18567
                 nergy Act of 1978: A regional assessment
79/9] 25 p0130 N80-1261
                 frequency control
                                                 25 p0022 A80-12735
                 ization strategy report for coal
                                                 25 p0135 N80-13285
                  of predicted and measured solar energy
                 erformance
                 PER 79-WA/SOL-391
                                                 25 p0069 A80-18589
                 tion of the parameters of the Weibull ed distribution for wind energy
                 ion purposes
                                                  25 p0042 A80-1608
                 . P.
                 tion of environmental control
                 gies for geothermal development in the Valley of California
                                                  25 p0179 N80-1566
    General-purpose heat source development. Phase 1:
     Design requirements
      [LA-7385-SR]
                                                  25 p0114 N80-1160
SNYDER, R. B.
The use of oil shale for SO2 emission control in
```

atmospheric-pressure fluidized-bed coal combustor 25 p0064 A80-1850

approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management [DOE/EV-70031/4-PI-A/B] 25 p0148 N80-

25 p0148 N80-13723

0

SODHA, H. S.  Performance of an inexpensive constant flow solar  collector/storage system in ground	SPITZER, M.: The semiconductor-insulator-semiconductor /indium tin oxide on silicon/ solar cell -
25 p0003 A80-10846 Transient rise of plate temperature in solar collectors	Characteristics and loss mechanisms 25 p0006 A80-11368 SPITZER, R. E.
SOFRATA, H. 25 p0 023 A80-12746	Sulfur fixation during coal gasification [PB-301104/6] 25 r0169 N80-15296
A study of the solar LiBr dual cycle characteristics [AIAA PAPER 80-0400] 25 p0077 A80-19327 SOLAR, S.	SPUCK, W. B., III  Borehole geological assessment
Photophysical and chemical processes affecting the stability of the thiazine dye-iron system	[NASA-CASE-NPO-14231-1] 25 p0104 N80-10709 SQUARCI, P. Assessment of geothermal potential of central and
SOLBES, A. 25 p0033 A80-13198	southern Tuscany 25 p0075 A80-19203
High interaction subsonic MHD channel operation [AIAA PAPER 80-0022] 25 p0062 A80-18242 Integral modeling of MHD channel boundary layers [AIAA PAPER 80-0175] 25 p0064 A80-18353	SRINIVASABURTHY, N. A theoretical method for estimation of power loss due to mismatch in solar cell I-V characteristics 25 p0025 A80-12763
SOLODUKHA, O. I.  High-voltage multijunction solar cell	SEINIVASAN, R. Effectiveness - NTU charts for latent heat storage
25 p0035 A80-14593 SOLOMON, A. D. Design criteria in PCM wall thermal storage	units [ASME PAPER 79-WA/SOL-16] 25 p0066 A80-18561
SONASUNDARAN, N. 25 p0021 A80-12440	SRINIVASAW, So Hydrogen-halogen energy storage system [BNL-50924] 25 p0139 N80-13632
Optimal control studies of a solar heating system [LA-UR-78-2556] 25 p0100 N80-10646 SORENSEN, J.	Solid electrolyte fuel cell for electric power generation [BNL-26238] 25 p0158 N80-14522
National energy policy and state coastal programs: A critique of current efforts to balance environmental protection and energy production	Applications of fuel cells in transportation [LA-UR-79-628] 25 p0159 N80-14526 SRIRAMULU, V.
along the coast [SAN-0034/263-1] 25 p0141 N80-13643	Performance characteristics of solar regenerators 25 p0028 A80-12787
SOUTH, D. H.  Distribution and classification of local socio-economic impacts from energy development	SRIVASTAVA, A.  Performance of an inexpensive constant flow solar  collector/storage system in ground
[CONF-790481-1] 25 p0166 N80-14954 SOWELL, E.	25 p0003 A80-10846
The Building Loads Analysis System Thermodynamics (BLAST) program, version 2.0 Input booklet	Role of oxide layer in Schottky barrier solar cells 25 p0025 &80-12761
[AD-A072435] 25 p0107 N80-11259 SONBLL, R. R. Thermal aging characteristics of electrodeposited	STACY, L. B. A conceptual design study on the application of
black chrome solar coatings [SAND-78-2094C] 25 p0159 N80-14527	liguid metal heat transfer technology to the solar thermal power plant [NASA-CR-162544] 25 p0154 N80-14484
SPARKS, T. G. The automated array assembly task of the low-cost	[ MASA-CR-162544] 25 p0154 N80-14484 STADJUBAR, S. A. An applications analysis for the solar industrial
silicon solar array project, phase 2 [NASA-CR-162429] 25 p0109 N80-11562	process heat market
SPARROW, E. M. Studies in heat transfer: A Pestschrift for E. R.	STAFFELDT, E. E. 25 p0088 A80-20888
G. Eckert	Economic analysis of small scale bioconversion units in New Mexico
25 p0036 A80-14655 Melting in phase-change thermal storage media	[PB-301390/1] 25 p0169 N80-15298 STAMPRE, R. R.
[COO-2993-1] 25 p0173 N80-15584  SPARROW, P. T.  Process optimization of industrial energy use	The 50,000 mile methanol/gasoline blend fleet study [CONP-790520-6] 25 p0134 N80-13275 STANLEY, N. E.
[BNL-26482] 25 p0141 N80-13650 SPATSCHEK, K. H. Theory of cavitons in laser-irradiated plasmas	INEL geothermal environmental program [TREE-1340] 25 p0112 N80-11595 STECCOMI, p.
SPEARS, W. E. 25 p0057 A80-17872	The calculation of carbon load and axial profiles of oxygen concentration in the hed of a
Poloidal magnetic field design of a pulsed tokamak reactor	fluidized combustor 25 p0077 A80-19421
25 p0078 A80-19592 SPENCER, D. B. Resource recovery systems costs	STECURA, S. Thermal barrier coatings for aircraft gas turbines [AIAA PAPER 80-0302] 25 p0064 A80-18303
SPENCER, D. F. 25 p0001 A80-10029	STEEN, P. C. Experimental techniques and mathematical models in
The near term potential for gasification-combined cycle electric power generation 25 p0015 A80-11970	the study of waste pyrolysis and gasification 25 p0001 A80-10028 STEFANI, G.
SPENCER, S. G. INEL geothermal environmental program	Assessment of geothermal potential of central and southern Tuscany
[TREE-1340] 25 p0112 N80-11595 SPERA, D. A.	STEHMEIER, D. 25 p0075 A80-19203
Modified power law equations for vertical wind profiles	Absorption heat pumps for solar space heating systems
[NASA-TH-79275] 25 p0 138 N80-13623 SPERBERG, R. T.	STEIDEL, R. F. 25 p0036 A80-14672
The reality of on-site fuel cells 25 p0016 A80-11973	Hybrid staging of geothermal energy conversion processes
PERO, E. A solar assisted and wind powered heat pump for	[UCID-17949] 25 p0125 N80-12569 STEINBERG, M.
residential dwellings [ASHE PAPER 79-WA/HT-33] 25 p0070 A80-18595	Environmental control technology for carbon dioxide [BNL-24999] 25 p0117 N80-11639 Coal conversion in flash hydropyrolysis reactors
	[BNL-26209] 25 p0136 N80-13294

## PERSONAL AUTHOR INDEX

Pusion energy for hydrogen produc		STRICKLAND, J. H.	
[BNL-24906] STEBBER, L. H.	25 p0180 N80-15897	A vortex model of the Darrieus to analytical and experimental st	
Photovoltaic concentrator applica	tion experiment.	[ASME PAPER 79-WA/PE-6]	25 p0070 A80-1862
Phase 1: A 150 kW photovoltaic		STRICKLER, D. J.	
power system for load-center ap feedback into the utility grid	prications with	High-beta tokamaks	25 p0054 A80-1778
[DOE/CS-34267/1] STENZ, C.	25 p0145 N80-13688	STRINGER, R. P. Research and evaluation of biomas	
Experimental studies of interacti	on and transport	resources/conversion/utilization	on systems
processes in laser fusion	25 p0057 A80-17864	<pre>(market/experimental analysis ) a data base for a fuels from bi</pre>	
STEPANOV, K. N.	25 p0057 200-17004	[COO-5022-5]	25 p0172 N80-1557
Fast-magnetosonic-wave excitation	in large-tokamak	STROGOBOV, O. V.	
plasmas	25 p0056 A80-17855	Dynamics of diesel fuel combustion	on in turbulent flo 25 p0091 N80-1007
STEPNIEWSKI, W.	23 po 030 200 17033	STRONBERG, R. P.	25 \$0031 10001007
Optimization of argon admixture i		Dynamic storage in solar total en	
fusion with non-stationary acti waves	on or plane shock	[SAND-78-0958C] STROUD, H. J. P.	25 p0174 N80-1560
******	25 p0007 A80-11546	Progress and development trends	in coal
STERNLIEB, G.	and realities	gasification and liquefaction (	
Back to the central city - Myths	25 p0002 A80-10323	Recent achievements in convent: gasification processes	IONAL COAL
STEUNENBERG, R. K.	_		25 p0031 A80-1294
Lithium/metal sulfide battery dev [CONF-790538-10]	elopment 25 p0159 N80-14530	STRUSS, R. G.	
Lithium/iron sulfide batteries fo		Operational experience with drain [IS-M-166]	25 p0125 N80-1257
[CONF-781006-2]	25 p0 175 N80-15611	STRYKER, E. Y.	
STEVENS, N. J. M.  The estimation of the parameters	of the Weibull	Integral cell scale-up and perfor [EPRI-EM-1134]	rmance verification 25 p0141 N80-1364
wind speed distribution for win		STUPAKOV, G. V.	25 po 141 nou-1304
utilization purposes	25 2042 200 46006	Transverse particle losses in ax	ially asymmetrical
STEWART, L. D.	25 p0042 A80-16086	open traps	25 p0055 A80-1784
Measured and predicted beam atten	uation in neutral	STYLES, A. C.	25 P0035 R00 1704
beam drift ducts for tokamaks	25 20070 300-10600	Combustion and turbulence charact	
STEWART, W. P.	25 p0079 A80-19600	cyclone combustors for burning value fuels	TOW Caloritic
Liquid hydrogen as an automotive		[AIAA PAPER 80-0075]	25 p0076 A80-1927
[LA-UR-79-621] STEWART, W. L.	25 p0136 N80-13297	STYMBE, H.  An incongruent heat-of-fusion sy:	rtor - CoCl2-6020
Preparing aircraft propulsion for	a new era in	- made congruent through modifi	
energy and the environment	05 0050 000 07707	chemical composition of the sys	stem
	25 p0053 A80-17737	chemical composition of the sys	
energy and the environment  STEYERT, W. A.  New heat transfer geometry for hy	-		stem
STEVERT, W. A.  New heat transfer geometry for hy engines and heat pumps	dride heat	SU, W. SERAPH implementation plans [SERI/RR-34-152]	stem
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]	-	chemical composition of the sy:  SU, W.  SERAPH implementation plans [SERI/RR-34-152] SUBRAHMANYAM, A.	25 p0029 A80-1282 25 p0172 N80-1557
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822] STICKFORD, G. H. Photovoltaic concentrator applica	dride heat  25 p0169 N80-15289  tion experiment.	SU, W. SERAPH implementation plans [SERI/RR-34-152]	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822] STICKFORD, G. H. Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic	dride heat  25 p0169 N80-15289  tion experiment.  concentrator	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHNANYAM, A.  Theoretical consideration of cursolar cells	25 p0029 A80-1282 25 p0172 N80-1557
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822] STICKFORD, G. H. Photovoltaic concentrator applica	dride heat  25 p0169 N80-15289  tion experiment.  concentrator	chemical composition of the sy:  SU, W.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cur-	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in
STEYERT, W. A.  New heat transfer geometry for hy engines and heat rumps [LA-7822] STICKFORD, G. H. Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOF/CS-34267/1]	dride heat  25 p0169 N80-15289  tion experiment.  concentrator	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822] STICKFORD, G. H. Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOF/CS-34267/1] STICKLEY, C. H.	dride heat  25 p0169 N80-15289  tion experiment. concentrator plications with  25 p0145 N80-13688	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHHANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHHANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.	25 p0029 A80-1282 25 p0172 N80-1557  ye fill factor in 25 p0026 A80-1276 25 p0023 A80-1274
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822] STICKFORD, G. H. Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOE/CS-34267/1] STICKLEY, C. H. Status of inertial confinement fu	dride heat  25 p0169 N80-15289  tion experiment. concentrator plications with  25 p0145 N80-13688	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1274 divanced process
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822] STICKFORD, G. H. Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOF/CS-34267/1] STICKLEY, C. H. Status of inertial confinement fu	dride heat  25 p0169 N80-15289  tion experiment. concentrator plications with  25 p0145 N80-13688  sion  25 p0016 A80-11976	chemical composition of the system.  SU, W.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHNANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHNANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an author conversion of coal to syntiother distillate motor fuels	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1274 divanced process hetic gasoline and
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822] STICKFORD, G. H. Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOE/CS-34267/1] STICKLEY, C. H. Status of inertial confinement fu	dride heat  25 p0169 N80-15289  tion experiment. concentrator plications with  25 p0145 N80-13688  sion  25 p0016 A80-11976	chemical composition of the system.  SU, W.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an adfor conversion of coal to synthother distillate motor fuels [FE-1800-33]	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1274 dvanced process hetic gasoline and 25 p0135 N80-1328
STBYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. H.  Photovoltaic concentrator applica phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOF/CS-34267/1]  STICKLEY, C. H.  Status of inertial confinement fu  STIEFEL, H.  Soft and hard energy paths - The	dride heat  25 p0169 N80-15289  tion experiment. concentrator plications with  25 p0145 N80-13688  sion 25 p0016 A80-11976  roads not taken 25 p0007 A80-11400	chemical composition of the system.  SU, W.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an autor conversion of coal to syntiother distillate motor fuels [FE-1800-33]  Research and development of an autor conversion of coal to syntion.	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1274 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. H.  Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOE/CS-34267/1]  STICKLEY, C. H.  Status of inertial confinement fu  STIEFEL, H.  Soft and hard energy paths - The  STIMPSON, L. D. Cooling a radioisotope power sour	dride heat  25 p0169 N80-15289  tion experiment. concentrator plications with  25 p0145 N80-13688  sion 25 p0016 A80-11976  roads not taken 25 p0007 A80-11400	chemical composition of the system.  SU, W.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an action conversion of coal to synthother distillate motor fuels [FE-1800-33]  Research and development of an action conversion of coal to synthother distillate motor fuels other distillate motor fuels	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1274 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and
STBYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. H.  Photovoltaic concentrator applica phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOF/CS-34267/1]  STICKLEY, C. H.  Status of inertial confinement fu  STIEFEL, H.  Soft and hard energy paths - The	dride heat  25 p0169 N80-15289  tion experiment. concentrator plications with  25 p0145 N80-13688  sion 25 p0016 A80-11976  roads not taken 25 p0007 A80-11400	chemical composition of the system.  SU, W.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an autor conversion of coal to syntiother distillate motor fuels [FE-1800-33]  Research and development of an autor conversion of coal to syntion.	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1274 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. B.  Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOE/CS-34267/1]  STICKLEY, C. B.  Status of inertial confinement fu  STIEFEL, B.  Soft and hard energy paths - The  STIMPSON, L. D.  Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPEE 79-ENAS-44]  STOLARZ, A. C.	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space  25 p0039 A80-15267	chemical composition of the system.  SU, W.  SERAPH implementation plans [SERI/RE-34-152]  SUBRAHAMYAM, A.  Theoretical consideration of cursolar cells  SUBRAHAMYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an action conversion of coal to syntiother distillate motor fuels [FE-1800-33]  Research and development of an action conversion of coal to syntiother distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy temperature.	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1274 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [1A-7822] STICKFORD, G. B.  Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOE/CS-34267/1] STICKLEY, C. M.  Status of inertial confinement fu STIEPEL, M.  Soft and hard energy paths - The  Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPER 79-ENAS-44] STOLARZ, A. C. Validation methodology for solar	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space  25 p0039 A80-15267	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an adfor conversion of coal to syntiother distillate motor fuels [FE-1800-33] Research and development of an adfor conversion of coal to syntiother distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy temanalysis. Volume 1: Summary	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1274 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. H.  Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOE/CS-34267/1]  STICKLEY, C. H.  Status of inertial confinement fu  STIEFEL, H.  Soft and hard energy paths - The  STIMPSON, L. D.  Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPEE 79-ENAS-44]  STOLARZ, A. C.  Validation methodology for solar cooling systems	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space  25 p0039 A80-15267	chemical composition of the sy:  SU, W.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHNANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHNANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an action conversion of coal to syntion other distillate motor fuels [FE-1800-33] Research and development of an action conversion of coal to syntion coal to syntion coal coal to syntion coal coal to syntion coal coal coal coal coal coal coal coal	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1274 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [1A-7822]  STICKFORD, G. B.  Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOE/CS-34267/1]  STICKLEY, C. M.  Status of inertial confinement fu  STIEPEL, M.  Soft and hard energy paths - The  Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPER 79-ENAS-44]  STOLARZ, A. C.  Validation methodology for solar cooling systems	dride heat  25 p0169 N80-15289  tion experiment. concentrator plications with  25 p0145 N80-13688  sion 25 p0016 A80-11976  roads not taken 25 p0007 A80-11400  ce in the Space  25 p0039 A80-15267  heating and	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an adfor conversion of coal to synthother distillate motor fuels [FE-1800-33] Research and development of an adfor conversion of coal to synthother distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy teanalysis. Volume 1: Summary [HCE/EV6119-1]  SUDWORTH, J. L.  Development of a sodium/sulphur 1	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1274 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. H.  Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOE/CS-34267/1]  STICKLEY, C. H.  Status of inertial confinement fu  STIEFEL, H.  Soft and hard energy paths - The  STIMPSON, L. D.  Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPEE 79-ENAS-44]  STOLARZ, A. C.  Validation methodology for solar cooling systems	dride heat  25 p0169 N80-15289  tion experiment. concentrator plications with  25 p0145 N80-13688  sion 25 p0016 A80-11976  roads not taken 25 p0007 A80-11400  ce in the Space  25 p0039 A80-15267  heating and	chemical composition of the sy:  SU, W.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHNANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHNANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an action conversion of coal to syntion other distillate motor fuels [FE-1800-33] Research and development of an action conversion of coal to syntion coal to syntion coal coal to syntion coal coal to syntion coal coal coal coal coal coal coal coal	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1274 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062 battery for rail
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [1A-7822]  STICKFORD, G. B.  Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOE/CS-34267/1]  STICKLEY, C. M.  Status of inertial confinement fu  STIEPEL, M.  Soft and hard energy paths - The  Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPER 79-ENAS-44]  STOLARZ, A. C.  Validation methodology for solar cooling systems  STONE, R. G.  Laminated disk flywheel program [UCRL-81772]  STORTI, G.	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space     25 p0039 A80-15267  heating and     25 p0020 A80-12431	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an adfor conversion of coal to synthother distillate motor fuels [FE-1800-33] Research and development of an adfor conversion of coal to synthother distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy teanalysis. Volume 1: Summary [HCP/EV6119-1]  SUDWORTH, J. L.  Development of a sodium/sulphur applications  SUFFET, I. B.	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1274 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062 battery for rail 25 p0031 A80-1300
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. H.  Photovoltaic concentrator applica phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOF/CS-34267/1]  STICKLEY, C. H.  Status of inertial confinement fu  STIEFEL, H.  Soft and hard energy paths - The cooling a radioisotope power sour Shuttle Orbiter [ASME PAPER 79-ENAS-44]  STOLARZ, A. C.  Validation methodology for solar cooling systems  STONE, R. G. Laminated disk flywheel program [UCRL-81772]  STORTI, G. Silicon concentrator solar cell m	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space     25 p0039 A80-15267  heating and     25 p0020 A80-12431	chemical composition of the sy:  SU, W.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an action of conversion of coal to synth other distillate motor fuels [FE-1800-33] Research and development of an action conversion of coal to synth other distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy telephone and synthemalysis. Volume 1: Summary [HCE/EV6119-1]  SUDDWORTH, J. L.  Development of a sodium/sulphur applications  SUPPET, I. H.  A chromatographic peak profiling	25 p0029 A80-1282 25 p0172 N80-1557  ye fill factor in 25 p0026 A80-1276  25 p0023 A80-1274  dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062 battery for rail 25 p0031 A80-1300  technique for
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [1A-7822]  STICKFORD, G. H.  Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOE/CS-34267/1]  STICKLEY, C. M.  Status of inertial confinement fu  STIEPEL, M.  Soft and hard energy paths - The  Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPER 79-ENAS-44]  STOLARZ, A. C.  Validation methodology for solar cooling systems  STONE, R. G.  Laminated disk flywheel program [URL-81772]  STORTI, G.  Silicon concentrator solar cell m development [SAND-79-7021]	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space     25 p0039 A80-15267  heating and     25 p0020 A80-12431	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an adfor conversion of coal to synthother distillate motor fuels [FE-1800-33] Research and development of an adfor conversion of coal to synthother distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy teanalysis. Volume 1: Summary [HCE/EV6119-1]  SUDWORTH, J. L.  Development of a sodium/sulphur applications  SUFFET, I. H.  A chromatographic peak profiling interpretation and analysis of processes	25 p0029 A80-1282 25 p0172 N80-1557  ye fill factor in 25 p0026 A80-1276  25 p0023 A80-1274  dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062 battery for rail 25 p0031 A80-1300  technique for
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. H. Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOF/CS-34267/1]  STICKLEY, C. H. Status of inertial confinement fu  STILPEL, H. Soft and hard energy paths - The  STIMPSON, L. D. Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPER 79-ENAS-44]  STOLARZ, A. C. Validation methodology for solar cooling systems  STONE, R. G. Laminated disk flywheel program [UCRL-81772]  STORTI, G. Silicon concentrator solar cell m development [SAND-79-7021]  STRABLE, W. C.	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space  25 p0039 A80-15267  heating and  25 p0020 A80-12431  25 p0175 N80-15612  anufacturing  25 p0146 N80-13697	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an adfor conversion of coal to synth other distillate motor fuels [FE-1800-33]  Research and development of an adfor conversion of coal to synth other distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy teanly in the composition of a sodium/sulphur applications  SUPPET, I. H.  A chromatographic peak profiling interpretation and analysis of processes [AIAA PAPER 80-0284]	25 p0029 A80-1282 25 p0172 N80-1557  ye fill factor in 25 p0026 A80-1276  25 p0023 A80-1274  dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062 battery for rail 25 p0031 A80-1300  technique for
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [1A-7822]  STICKFORD, G. H.  Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOE/CS-34267/1]  STICKLEY, C. M.  Status of inertial confinement fu  STIEPEL, M.  Soft and hard energy paths - The  Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPER 79-ENAS-44]  STOLARZ, A. C.  Validation methodology for solar cooling systems  STONE, R. G.  Laminated disk flywheel program [URL-81772]  STORTI, G.  Silicon concentrator solar cell m development [SAND-79-7021]	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space  25 p0039 A80-15267  heating and  25 p0020 A80-12431  25 p0175 N80-15612  anufacturing  25 p0146 N80-13697	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an afor conversion of coal to synthother distillate motor fuels [FE-1800-33]  Research and development of an afor conversion of coal to synthother distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy teanalysis. Volume 1: Summary [HCP-W6119-1]  SUDDWORTH, J. L.  Development of a sodium/sulphur lapplications  SUFFET, I. H.  A chromatographic peak profiling interpretation and analysis of processes [AIAAA PAPER 80-0284]  SUGIHARA, R.	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1276 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062 battery for rail 25 p031 A80-1300 technique for combustion 25 p0063 A80-1829
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. H. Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOF/CS-34267/1]  STICKLEY, C. H. Status of inertial confinement fu  STIEFEL, H. Soft and hard energy paths - The  STIMPSON, L. D. Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPER 79-ENAS-44]  STOLARZ, A. C. Validation methodology for solar cooling systems  STONE, R. G. Laminated disk flywheel program [UCRL-81772]  STORTI, G. Silicon concentrator solar cell m development [SAND-79-7021]  STRABLE, W. C. Nach 3 hydrogen external/base bur [AIAA PAPER 80-0280]  STRICKLAND, G.	dride heat  25 p0169 N80-15289  tion experiment. concentrator plications with  25 p0145 N80-13688  sion 25 p0016 A80-11976  roads not taken 25 p0007 A80-11400  ce in the Space  25 p0039 A80-15267  heating and  25 p0020 A80-12431  25 p0175 N80-15612  anufacturing  25 p0146 N80-13697  ning 25 p0077 A80-19311	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an adfor conversion of coal to synth other distillate motor fuels [FE-1800-33]  Research and development of an adfor conversion of coal to synth other distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy teanly in the composition of a sodium/sulphur applications  SUPPET, I. H.  A chromatographic peak profiling interpretation and analysis of processes [AIAA PAPER 80-0284]	25 p0029 A80-1282 25 p0172 N80-1557  ye fill factor in 25 p0026 A80-1276 25 p0023 A80-1274  dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062 battery for rail 25 p0031 A80-1300  technique for combustion 25 p0063 A80-1829 ized plasma by
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. B. Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOE/CS-34267/1]  STICKLEY, C. M. Status of inertial confinement fu  STIEFEL, H. Soft and hard energy paths - The STIMPSON, L. D. Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPER 79-ENAS-44]  STOLARZ, A. C. Validation methodology for solar cooling systems  STONE, R. G. Laminated disk flywheel program [UCRL-81772]  STORTI, G. Silicon concentrator solar cell m development [SAND-79-7021]  STRAHLE, W. C. Nach 3 hydrogen external/base bur [AIAA PAPER 80-0280]  STRICKLAND, G. Energy storage systems for automo	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space     25 p0039 A80-15267  heating and     25 p0020 A80-12431  25 p0175 N80-15612  anufacturing     25 p0146 N80-13697  ning     25 p0077 A80-19311  bile propulsion,	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an action of conversion of coal to synthother distillate motor fuels [FE-1800-33]  Research and development of an action conversion of coal to synthother distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy tecanalysis. Volume 1: Summary [HCE/EV6119-1]  SUDDWORTH, J. L.  Development of a sodium/sulphur lapplications  SUFPET, I. H.  A chromatographic peak profiling interpretation and analysis of processes [AIAAA PAPER 80-0284]  SUGIHARA, R.  Non-stochastic heating of magnetic electrostatic wave	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1276 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062 battery for rail 25 p031 A80-1300 technique for combustion 25 p0063 A80-1829
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. H. Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOF/CS-34267/1]  STICKLEY, C. H. Status of inertial confinement fu  STIEFEL, H. Soft and hard energy paths - The  STIMPSON, L. D. Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPER 79-ENAS-44]  STOLARZ, A. C. Validation methodology for solar cooling systems  STONE, R. G. Laminated disk flywheel program [UCRL-81772]  STORTI, G. Silicon concentrator solar cell m development [SAND-79-7021]  STRABLE, W. C. Nach 3 hydrogen external/base bur [AIAA PAPER 80-0280]  STRICKLAND, G. Energy storage systems for automo 1978 study. 1: Overview and f	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space  25 p0039 A80-15267  heating and  25 p0020 A80-12431  25 p0175 N80-15612  anufacturing  25 p0146 N80-13697  ning     25 p0077 A80-19311  bile propulsion, indings     25 p0105 N80-10970	chemical composition of the system.  SURAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, H.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an adfor conversion of coal to synth other distillate motor fuels [FE-1800-33]  Research and development of an adfor conversion of coal to synth other distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy teleanlysis. Volume 1: Summary [HCP/EV6119-1]  SUDWORTH, J. L.  Development of a sodium/sulphur lapplications  SUFFET, I. H.  A chromatographic peak profiling interpretation and analysis of processes [AIAA PAPER 80-0284]  SUGIHARA, R.  Non-stochastic heating of magnet: electrostatic wave  SULEIMANOV, S. KH.  Calculation of the optical characteric contents and conten	25 p0029 A80-1282 25 p0172 N80-1557  ye fill factor in 25 p0026 A80-1276 25 p0023 A80-1274  dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062 battery for rail 25 p0031 A80-1300 technique for combustion 25 p0063 A80-1829 ized plasma by 25 p0043 A80-1619 cteristics of
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. B. Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOF/CS-34267/1]  STICKLEY, C. M. Status of inertial confinement fu  STIEFEL, H. Soft and hard energy paths - The STIMPSOW, L. D. Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPER 79-ENNS-44]  STOLARZ, A. C. Validation methodology for solar cooling systems  STONE, R. G. Laminated disk flywheel program [UCRL-81772]  STORTI, G. Silicon concentrator solar cell m development [SAND-79-7021]  STRAHLE, W. C. Nach 3 hydrogen external/base bur [AIAA PAPER 80-0280]  STRICKLAND, G. Energy storage systems for automo 1978 study. 1: Overview and f [UCRL-52553-VOL-1] Energy storage system for automo	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space  25 p0039 A80-15267  heating and  25 p0020 A80-12431  25 p0175 N80-15612  anufacturing  25 p0146 N80-13697  ning     25 p0077 A80-19311  bile propulsion, indings     25 p0105 N80-10970 ile propulsion,	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHNANYAM, A.  Theoretical consideration of curresolar cells  SUBRAHNANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an adfor conversion of coal to synthother distillate motor fuels [FE-1800-33]  Research and development of an adfor conversion of coal to synthother distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy teanalysis. Volume 1: Summary [HCP/EV6119-1]  SUDWORTH, J. L.  Development of a sodium/sulphur applications  SUFFET, I. H.  A chromatographic peak profiling interpretation and analysis of processes [AIAA PAPER 80-0284]  SUGIBARA, R.  Non-stochastic heating of magnet: electrostatic wave	25 p0029 A80-1282 25 p0172 N80-1557 we fill factor in 25 p0026 A80-1276 25 p0023 A80-1276 25 p0023 A80-1274 dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062 battery for rail 25 p0031 A80-1300 technique for combustion 25 p0063 A80-1829 ized plasma by 25 p0043 A80-1619 cteristics of
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. H. Photovoltaic concentrator applica Phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOF/CS-34267/1]  STICKLEY, C. H. Status of inertial confinement fu  STIEFEL, H. Soft and hard energy paths - The  STIMPSON, L. D. Cooling a radioisotope power sour Shuttle Orbiter [ASME PAPER 79-ENAS-44]  STOLARZ, A. C. Validation methodology for solar cooling systems  STONE, R. G. Laminated disk flywheel program [UCRL-81772]  STORTI, G. Silicon concentrator solar cell m development [SAND-79-7021]  STRABLE, W. C. Nach 3 hydrogen external/base bur [AIAA PAPER 80-0280]  STRICKLAND, G. Energy storage systems for automo 1978 study. 1: Overview and f	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space  25 p0039 A80-15267  heating and  25 p0020 A80-12431  25 p0175 N80-15612  anufacturing  25 p0146 N80-13697  ning     25 p0077 A80-19311  bile propulsion, indings     25 p0105 N80-10970 ile propulsion,	chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHMANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHMANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an adfor conversion of coal to synth other distillate motor fuels [FE-1800-33]  Research and development of an adfor conversion of coal to synth other distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy teleanlysis. Volume 1: Summary [HCP/EV6119-1]  SUDWORTH, J. L.  Development of a sodium/sulphur applications  SUPPET, I. H.  A chromatographic peak profiling interpretation and analysis of processes [AIAA PAPER 80-0284]  SUGIHARA, R.  Non-stochastic heating of magnet: electrostatic wave  SULLIMANOV, S. KH.  Calculation of the optical charachigh-power two-mirror solar fur	25 p0029 A80-1282 25 p0172 N80-1557  We fill factor in 25 p0026 A80-1276  25 p0023 A80-1274  dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062 battery for rail 25 p0031 A80-1300  technique for combustion 25 p0063 A80-1829 ized plasma by 25 p0043 A80-1619 cteristics of traces 25 p0044 A80-1662
STEYERT, W. A.  New heat transfer geometry for hy engines and heat pumps [LA-7822]  STICKFORD, G. H.  Photovoltaic concentrator applica phase 1: A 150 kW photovoltaic power system for load-center ap feedback into the utility grid [DOF/CS-34267/1]  STICKLEY, C. H.  Status of inertial confinement fu  STIEPEL, H.  Soft and hard energy paths - The coling a radioisotope power sour shuttle Orbiter [ASME PAPER 79-ENAS-44]  STOLARZ, A. C.  Validation methodology for solar cooling systems  STONE, R. G. Laminated disk flywheel program [UCRL-81772]  STORTI, G.  Silicon concentrator solar cell m development [SAND-79-7021]  STRAHLE, W. C.  Mach 3 hydrogen external/base bur [AIAA PAPER 80-0280]  STRICKLAND, G.  Energy storage systems for automon 1978 study. 1: Overview and f [UCRL-52553-VOL-1]  Energy storage system for automob 1978 study. 2: Detailed report	dride heat  25 p0169 N80-15289  tion experiment.     concentrator plications with  25 p0145 N80-13688  sion     25 p0016 A80-11976  roads not taken     25 p0007 A80-11400  ce in the Space     25 p0039 A80-15267  heating and     25 p0175 N80-15612  anufacturing     25 p0146 N80-13697  ning     25 p0077 A80-19311  bile propulsion, indings     25 p0105 N80-10970 ile propulsion, t	Chemical composition of the system.  SERAPH implementation plans [SERI/RR-34-152]  SUBRAHNANYAM, A.  Theoretical consideration of cursolar cells  SUBRAHNANYAM, M.  Studies of photogalvanic cells  SUCCOP, D. C.  Research and development of an adfor conversion of coal to synthother distillate motor fuels [FE-1800-33]  Research and development of an adfor conversion of coal to synthother distillate motor fuels [FE-1800-30]  SUCHER, G.  Environmental data for energy teanalysis. Volume 1: Summary [HCP/EV6119-1]  SUDWORTH, J. L.  Development of a sodium/sulphur applications  SUFFET, I. H.  A chromatographic peak profiling interpretation and analysis of processes [AIAA PAPER 80-0284]  SUGIBARA, R.  Non-stochastic heating of magnet: electrostatic wave  SULEIMANOV, S. KH.  Calculation of the optical charachigh-power two-mirror solar fur	25 p0029 A80-1282 25 p0172 N80-1557  We fill factor in 25 p0026 A80-1276  25 p0023 A80-1274  dvanced process hetic gasoline and 25 p0135 N80-1328 dvanced process hetic gasoline and 25 p0135 N80-1329 chnology policy 25 p0098 N80-1062 battery for rail 25 p0031 A80-1300  technique for combustion 25 p0063 A80-1829 ized plasma by 25 p0043 A80-1619 cteristics of traces 25 p0044 A80-1662

B-58

SULLIVAH, L. D.	TAIROV, B. D.
Coal-fired open cycle MHD combustion plasmas -	Thermodynamic analysis of thermomechanical solar
Chemical equilibrium and transport properties	energy converters operating in conjunction with
workshop results	solar cells
[AIAA PAPER 80-0091] 25 p0063 A80-18265	25 p0035 A80-14592
SULLIVAN, B. C.	TAKAHASHI, P.
Energy conservation - Aerodynamic drag reduction of intercity buses	Solar/wind handbook for Hawaii: Technical
25 p0050 A80-17227	applications for Hawaii, the Pacific Basin and
SULLIVAN, W. N.	sites worldwide with similar climatic conditions [OCRL-15053] 25 p0177 N80-15628
Efforts on the economic analysis of Darrieus	[OCRL-15053] 25 p0177 N80-15628 TAKAHASHI, T.
vertical axis wind turbines	Water electrolysis
[SAND-78-1851C] 25 p0 126 N80-12579	25 p0052 A80-17576
SURPRENANT, H. P.	TAKEO, K.
Emissions assessment of conventional stationary	Development of an aircraft-derivative gas turbine
combustion systems. Volume 1: Gas- and	with high performance and large output .
oil-fired residential heating sources	25 p0003 A80-10823
[PB-298494/6] 25 p0131 N80-12637 SUTER, G. W., II	TAKEO, T.
Environmental implications for geothermal energy	Water splitting reaction on a polynaphthoquinone catalyst - A polynaphthoquinone-So2-I2 system
development	for H2O decomposition
[CONF-790445-3] 25 p0103 N80-10694	25 p0032 A80-13196
SUTTER, D. P.	TAKEYA, G.
The United States programme in heavy ion beam fusion	Activity tests of various catalysts for
25 p0058 A80-17873	hydrocracking of coal by means of high pressure
SUTTON, N.	differential thermal analysis
The distribution of sulfur and organic matter in	25 p0019 A80-12244
<pre>various fractions of peat - Origins of sulfur in coal</pre>	TALASTOV, A. V.
25 p0074 A80-18833	Dynamics of diesel fuel combustion in turbulent flow
SUTTON, S. B.	25 p0091 N80-10074
The impact of LNG spills on the environment: A	Underground pumped hydro storage: An overview
comparison of dispersion models and experimental	[CONF-781046-1] 25 p0116 N80-11624
data	Turbomachinery options for an underground pumped
[UCRL-81812] 25 p0103 N80-10688	hydroelectric storage plant
SOYANA, J.	[CONF-790803-50] 25 p0177 N80-15629
Prospects of future geothermal energy development	TANABE, K.
SWANI, N. K. 25 p0049 A80-17138	Activity tests of various catalysts for
Role of oxide layer in Schottky barrier solar cells	hydrocracking of coal by means of high pressure differential thermal analysis
25 p0025 A80-12761	25 p0019 A80-12244
Effect of concentrated sunlight on the various	TANASESCU, P. T.
parameters of the p-n junction solar cell	Some promising aspects regarding solar energy
25 p0 C25 A80-12764	conversion with metal oxide photovoltaic cells
SWANDERG, C. A.	25 p0011 A80-11853
Use of geothermal energy for desalination in New	25 p0011 A80-11853
Use of geothermal energy for desalination in New Mexico: A feasibility study	TANENBAUM, G. 25 p0011 A80-11853 Environmental aspects of alternative energy
Use of geothermal energy for desalination in New Mexico: A feasibility study [PB-299271/7] 25 p0179 N80-15645	25 p0011 A80-11853 TANENBAUH, G. Environmental aspects of alternative energy technologies for California
Use of geothermal energy for desalination in New Mexico: A feasibility study [PB-299271/7] 25 p0179 N80-15645 SWANSON, S. R.	TANENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors	TANENBAUM, G. Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628
Use of geothermal energy for desalination in New Mexico: A feasibility study [PB-299271/7] 25 p0179 N80-15645 SWANSON, S. R.	TANENBAUH, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628  TANNER, D. P.  Silicon solar cell process development,
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. R.  Computer simulation results for planar reflectors and flat plate solar collectors	TANENBAUM, G. Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. R.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. H.  Effect of vertical scale distortion on the	TAMENBAUH, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561  TARONI, A.
Use of geothermal energy for desalination in New Mexico: A feasibility study [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B. Computer simulation results for planar reflectors and flat plate solar collectors [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B. Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model	TAMENBAUH, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628  TANNEER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561  TARONI, A.  Numerical computations in the design of compact
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. R.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. H.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551	TANENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CE-162427] 25 p0109 N80-11561  TARONI, A.  Numerical computations in the design of compact ignition experiments
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. H.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZINSKI, B.	TAMENBAUH, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561  TARONI, A.  Numerical computations in the design of compact ignition experiments
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at	TAMENBAUH, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. R.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. H.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZINSKI, R.  Optimization of neutron yield in conical system at explosion-induced compression	TANENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 &80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at	TANENBAUH, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [N83A-CB-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells
Use of geothermal energy for desalination in New Mexico: A feasibility study [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. R.  Computer simulation results for planar reflectors and flat plate solar collectors [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. H.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model [PB-297274/3] 25 p0108 N80-11551  SWIERCZIMSKI, R.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E. Use of nuclear techniques in the characterization	TANENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 &80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 M80-12628  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 M80-11561  TARONI, A.  Numerical computations in the design of compact ignition experiments 25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells 25 p0086 A80-20717  TAYLOR, S. J.  Commercialization strategy report for small wind systems
Use of geothermal energy for desalination in New Mexico: A feasibility study [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces 25 p0084 A80-20141	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  1 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind systems  [TID-28844-DRAPT]  25 p0161 N80-14543
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. H.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZINSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal MHD beta limits on current	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind systems [TID-28844-DRAFT]  Commercialization strategy report for large wind
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. B.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal MHD beta limits on current density and pressure profiles	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 M80-12628  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NSA-CR-162427] 25 p0109 M80-11561  TARONI, A.  Numerical computations in the design of compact ignition experiments 25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells 25 p0086 A80-20717  TAYLOR, S. J.  Commercialization strategy report for small wind systems [TID-28844-DRAFT] 25 p0161 M80-14543 Commercialization strategy report for large wind systems
Use of geothermal energy for desalination in New Mexico: A feasibility study [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression 25 p0007 A80-11545  SWITKOWSKI, Z. E. Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces 25 p0084 A80-20141  SYKES, A.  Dependence of ideal MHD beta limits on current density and pressure profiles	TAMBUBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind systems  [TID-28844-DRAPT]  Commercialization strategy report for large wind systems  [TID-28843-DRAFT]  25 p0161 N80-14544
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. B.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal MHD beta limits on current density and pressure profiles	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind systems [TID-28844-DRAFT]  Commercialization strategy report for large wind systems [TID-28843-DRAFT]  TERGLE, D. A.
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal MHD beta limits on current density and pressure profiles  SYLWAN, C.	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002] 25 p0131 N80-12628  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561  TARONI, A.  Numerical computations in the design of compact ignition experiments 25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  1
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZINSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal MHD beta limits on current density and pressure profiles  25 p0054 A80-17790  SYLWAN, C.  Utility fuel cells for Sweden  25 p0011 A80-11852	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind systems [TID-28844-DRAFT]  Commercialization strategy report for large wind systems [TID-28843-DRAFT]  TERGLE, D. A.  Current collectors for sodium-sulphur batteries 25 p0013 A80-11867
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZINSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. B.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal NHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  SYRED, N.  Combustion and turbulence characteristics of	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [URIL-15002] 25 p0131 N80-12628  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561  TARRONI, A.  Numerical computations in the design of compact ignition experiments 25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind systems [TID-28844-DRAFT] 25 p0161 N80-14543  Commercialization strategy report for large wind systems [TID-28843-DRAFT] 25 p0161 N80-14544  TRAGLE, D. A.  Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  TEGGEES, H.  Coal as a source of chemical raw materials -
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. H.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZINSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0007 A80-11545  SYKES, A.  Dependence of ideal NHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  25 p0011 A80-17790  SYLWAN, C.  Combustion and turbulence characteristics of cyclone combustors for burning low calcrific	TAMBENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  1
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal NHD beta limits on current density and pressure profiles  25 p0054 A80-17790  SYLWAH, C.  Utility fuel cells for Sweden  25 p0011 A80-11852  SYRED, N.  Combustion and turbulence characteristics of cyclone combustors for burning low calcrific value fuels	TAMBENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  25 p0086 A80-20717  TAYLOR, S. J.  Commercialization strategy report for small wind systems [TID-28844-DRAFT]  Commercialization strategy report for large wind systems [TID-28843-DRAFT]  TEAGLE, D. A.  Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  TEGGEBS, H.  Coal as a source of chemical raw materials - Prospects for chemical synthesis based on gas from coal
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal NHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  25 p0011 A80-11852  SYRED, N.  Combustion and turbulence characteristics of cyclone combustors for burning low calcrific value fuels  [AIAA PAPER 80-0075] 25 p0076 A80-19275	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [URIL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind systems  [TID-28844-DRAPT]  Commercialization strategy report for large wind systems  [TID-28843-DRAPT]  TRAGLE, D. A.  Current collectors for sodium-sulphur batteries  Current collectors for sodium-sulphur batteries  TEGGERS, H.  Coal as a source of chemical raw materials - Prospects for chemical synthesis based on gas from coal
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. H.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0007 A80-11545  SWIES, A.  Dependence of ideal NHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  25 p0011 A80-17790  SYLWAN, C.  Combustion and turbulence characteristics of cyclone combustors for burning low calcrific value fuels  [AIAA PAPER 80-0075] 25 p0076 A80-19275  SZE, DK.	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind systems  [TID-28844-DRAPT]  Commercialization strategy report for large wind systems  [TID-28843-DRAFT]  TENGLE, D. A.  Current collectors for sodium-sulphur batteries  Prospects for chemical raw materials - Prospects for chemical synthesis based on gas from coal  TENBOURY, J.
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal NHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  25 p0011 A80-11852  SYRED, N.  Combustion and turbulence characteristics of cyclone combustors for burning low calcrific value fuels  [AIAA PAPER 80-0075] 25 p0076 A80-19275	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CB-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind systems [TID-28844-DRAFT]  Commercialization strategy report for large wind systems [TID-28843-DRAFT]  TRAGLE, D. A.  Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  TEGGEES, H.  Coal as a source of chemical raw materials - Prospects for chemical synthesis based on gas from coal  25 p0031 A80-12944  TENBOURY, J.  Project CESA-1, a 1 MW solar power plant in Almeria
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. H.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black solar absorber surfaces  25 p0004 A80-20141  SYKES, A.  Dependence of ideal MHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  25 p0011 A80-11852  SYLWAN, C.  Combustion and turbulence characteristics of cyclone combustors for burning low calcrific value fuels  [AIAA PAPER 80-0075] 25 p0076 A80-19275  SZE, DK.  Blanket and power conversion system of NUWMAK	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind systems  [TID-28844-DRAPT]  Commercialization strategy report for large wind systems  [TID-28843-DRAFT]  TENGLE, D. A.  Current collectors for sodium-sulphur batteries  Prospects for chemical raw materials - Prospects for chemical synthesis based on gas from coal  TENBOURY, J.
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal MHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  SYRED, N.  Combustion and turbulence characteristics of cyclone combustors for burning low calcrific value fuels  [AIAP PAPER 80-0075] 25 p0076 A80-19275  SZE, DK.  Blanket and power conversion system of NUWMAK  25 p0081 A80-19658	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CB-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind systems [TID-28844-DRAFT]  Commercialization strategy report for large wind systems [TID-28843-DRAFT]  TRAGLE, D. A.  Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  TEGGEES, H.  Coal as a source of chemical raw materials - Prospects for chemical synthesis based on gas from coal  TENBOURY, J.  Project CESA-1, a 1 MW solar power plant in Almeria [AED-CCNF-78-212-011]  TENHOUS, B.  Boundary layer analysis of cold-blanket systems
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal NHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  SYRED, N.  Combustion and turbulence characteristics of cyclone combustors for burning low calcrific value fuels  [AIAA PAPER 80-0075] 25 p0076 A80-19275  SZE, DK.  Blanket and power conversion system of NUWMAK  25 p0081 A80-19658	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [URIL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TANIOR, S. J.  Commercialization strategy report for small wind systems  [TID-28844-DRAPT]  Commercialization strategy report for large wind systems  [TID-28843-DRAPT]  TRAGLE, D. A.  Current collectors for sodium-sulphur batteries  TEGGERS, H.  Coal as a source of chemical raw materials - Prospects for chemical synthesis based on gas from coal  TEMBOURY, J.  Project CESA-1, a 1 MW solar power plant in Almeria [AED-CONP-78-212-011]  TENHFORS, E.  Boundary layer analysis of cold-blanket systems  25 p0058 A80-17877
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. H.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0007 A80-11545  SWIES, A.  Dependence of ideal NHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  SYRED, N.  Combustion and turbulence characteristics of cyclone combustors for burning low calcrific value fuels  [AIAM PAPER 80-0075] 25 p0076 A80-19275  SZE, DK.  Blanket and power conversion system of NUWMAK  25 p0081 A80-19658	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P. Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J. Commercialization strategy report for small wind systems [TID-28844-DRAPT] Commercialization strategy report for large wind systems [TID-28843-DRAPT] TENGLE, D. A. Current collectors for sodium-sulphur batteries 25 p0011 A80-14544  TEGGEES, H. Coal as a source of chemical raw materials - Prospects for chemical synthesis based on gas from coal  TENBOURY, J. Project CESA-1, a 1 MW solar power plant in Almeria [AED-CCNF-78-212-011]  TENBOURY, J. Boundary layer analysis of cold-blanket systems 25 p0058 A80-17877
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0007 A80-11545  SWIES, A.  Dependence of ideal MHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  SYLWAN, C.  Otility fuel cells for Sweden  SYLWAN, C.  Outility fuel cells for Sweden  SYLWAN, C.  Blanket and power conversion system of NUWMAK  25 p0081 A80-19275  SZE, DK.  Blanket and experimental analysis of a fluidic	TANENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CB-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J.  Commercialization strategy report for small wind systems [TID-28844-DRAFT]  Commercialization strategy report for large wind systems [TID-28843-DRAFT]  TRAGLE, D. A.  Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  TEGGEES, H.  Coal as a source of chemical raw materials - Prospects for chemical synthesis based on gas from coal  TENBOURY, J.  Project CESA-1, a 1 MW solar power plant in Almeria [AED-CCNF-78-212-011]  TENBOURY, J.  Project CESA-1, a 1 MW solar power plant in Almeria [AED-CCNF-78-212-011]  TENBOURY layer analysis of cold-blanket systems 25 p0058 A80-17877  TEOFILO, V. L.  Fuel production characteristics of fusion hybrid
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal NHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  SYRED, N.  Combustion and turbulence characteristics of cyclone combustors for burning low calcrific value fuels  [AIAA PAPER 80-0075] 25 p0076 A80-19275  SZE, DK.  Blanket and power conversion system of NUWMAK  25 p0081 A80-19658  T  TACCEY, C. F.  Modeling and experimental analysis of a fluidic generator	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [URIL-15002] 25 p0131 N80-12628  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561  TARONI, A.  Numerical computations in the design of compact ignition experiments 25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TANIOR, S. J.  Commercialization strategy report for small wind systems [TID-28844-DRAPT] 25 p0161 N80-14543  Commercialization strategy report for large wind systems [TID-28843-DRAPT] 25 p0161 N80-14544  TRAGLE, D. A.  Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  TEGGERS, H.  Coal as a source of chemical raw materials - Prospects for chemical synthesis based on gas from coal 25 p0031 A80-12944  TENBOURY, J.  Project CESA-1, a 1 MW solar power plant in Almeria [AED-CCNF-78-212-011] 25 p0130 N80-12614  TENHFORS, E.  Boundary layer analysis of cold-blanket systems 25 p0058 A80-17877  TEOFILO, V. L.  Fuel production characteristics of fusion hybrid reactors
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. H.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0007 A80-11545  SWIES, A.  Dependence of ideal MHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  SYLWAN, C.  Utility fuel cells for Sweden  25 p0011 A80-11852  SYLED, N.  Combustion and turbulence characteristics of cyclone combustors for burning low calcrific value fuels  [AIAA PAPER 80-0075] 25 p0076 A80-19275  SZE, DK.  Blanket and power conversion system of NUWMAK  25 p0081 A80-19658  T  FACEY, C. F.  Modeling and experimental analysis of a fluidic generator  [ASME PAPER 79-DET-9] 25 p0041 A80-15705	TANENBAUM, G.  Environmental aspects of alternative energy technologies for California [UCRL-15002]  TANNER, D. P. Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427]  TARONI, A.  Numerical computations in the design of compact ignition experiments  25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TAYLOR, S. J. Commercialization strategy report for small wind systems [TID-28844-DRAPT] Commercialization strategy report for large wind systems [TID-28843-DRAPT] TENGLE, D. A. Current collectors for sodium-sulphur batteries 25 p0013 A80-14544  TEGGERS, H. Coal as a source of chemical raw materials - Prospects for chemical synthesis based on gas from coal  TEMBOURY, J. Project CESA-1, a 1 MW solar power plant in Almeria [AED-CCNF-78-212-011]  TENHOUS, R. Boundary layer analysis of cold-blanket systems 25 p0058 A80-17877  TEOFILO, V. L. Fuel production characteristics of fusion hybrid reactors
Use of geothermal energy for desalination in New Mexico: A feasibility study  [PB-299271/7] 25 p0179 N80-15645  SWANSON, S. B.  Computer simulation results for planar reflectors and flat plate solar collectors  [ASME PAPER 79-WA/SOL-37] 25 p0066 A80-18559  SWARTZ, S. B.  Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model  [PB-297274/3] 25 p0108 N80-11551  SWIERCZYNSKI, B.  Optimization of neutron yield in conical system at explosion-induced compression  25 p0007 A80-11545  SWITKOWSKI, Z. E.  Use of nuclear techniques in the characterization of chrome black sclar absorber surfaces  25 p0084 A80-20141  SYKES, A.  Dependence of ideal NHD beta limits on current density and pressure profiles  SYLWAN, C.  Utility fuel cells for Sweden  SYRED, N.  Combustion and turbulence characteristics of cyclone combustors for burning low calcrific value fuels  [AIAA PAPER 80-0075] 25 p0076 A80-19275  SZE, DK.  Blanket and power conversion system of NUWMAK  25 p0081 A80-19658  T  TACCEY, C. F.  Modeling and experimental analysis of a fluidic generator	TAMENBAUM, G.  Environmental aspects of alternative energy technologies for California [URIL-15002] 25 p0131 N80-12628  TANNER, D. P.  Silicon solar cell process development, fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561  TARONI, A.  Numerical computations in the design of compact ignition experiments 25 p0078 A80-19589  TARRICONE, L.  Measurements of minority-carrier diffusion length in heterojunction solar cells  TANIOR, S. J.  Commercialization strategy report for small wind systems [TID-28844-DRAPT] 25 p0161 N80-14543  Commercialization strategy report for large wind systems [TID-28843-DRAPT] 25 p0161 N80-14544  TRAGLE, D. A.  Current collectors for sodium-sulphur batteries 25 p0013 A80-11867  TEGGERS, H.  Coal as a source of chemical raw materials - Prospects for chemical synthesis based on gas from coal 25 p0031 A80-12944  TENBOURY, J.  Project CESA-1, a 1 MW solar power plant in Almeria [AED-CCNF-78-212-011] 25 p0130 N80-12614  TENHFORS, E.  Boundary layer analysis of cold-blanket systems 25 p0058 A80-17877  TEOFILO, V. L.  Fuel production characteristics of fusion hybrid reactors

TERRELL, R. E.  Performance and analysis of a 'seri	ies	• ь	eat		
pump-assisted solar heated reside	enc	e i	n ä	adis	on,
Wisconsin	25	p00	61	A80-	18 132
TERRY, R. H.					
Photovoltaic incentives options [HCP/CS-0023]	25	p 0 1	62	N80-	14561
TEWARI, G. N.					
Transient rise of plate temperature collectors	e i	n s	ola	r	
	25	p0 (	23	<b>A80-</b>	12746
TEWARY, V. K.  Performance studies on uniform illumontracking concentrators	umi	na t	ion	typ	e
-	25	p0(	26	A80-	12766
THALHAMMER, E. D.					
Heliostat Beam Characterization Sys			22	-08A	12627
THANVI, K. P.					
Effect of boosters on the performan	nce	01	f 1	at	
plate collector	25	p0(	23	A80-	12744
THEUNISSEN, P. H. Application of packed beds to energy					
of latent heat of fusion					
THOMAS, I. H.	25	<b>p0</b> 1	21	N80-	12353
Determination of the technical and	ec	one	mic	3	
feasibility of luminescent solar	CO	nce	nti	ator	s
[SAND-79-7005]	25	00	CC.	N80-	10650
THOMAS, J. R., JR.					
Helium penetration in evacuated so	lar	C	110	ctor	s -
Theory and effect on their perfo	rma	DC 6	2		
Theory and effect on their perfo [ASME PAPER 79-WA/SOL-17]	25	p0(	66	A80-	18563
THOMAS, M. G.		-			
THOMAS, M. G. Low temperature reaction path for	coa	1 1	ligu	ıefac	tion
(SAND-79-0738C)	25	p0 '	169	N80-	15288
THOMAS, R. A. Partial discharge performance of 1		_	_		
Partial discharge performance of 1	app	ed	pla	astic	;
insulation for superconducting p	0	: L			
transmission cables and the diel	ect	E1	: st	treng	th
of supercritical helium gas	~-	_		***	45346
	25	pυ	170	N80-	15346
THOMAS, R. E.	٠.	· <b>.</b> .		c	
Development of an accelerated test predicting the service life of t	ae	51	, a c	. 01	
	пе	SO.	rar	arre	ıy
at Mead, Nebraska	25	n0	15/1	NAO-	14483
	23	Pu		200	14405
THOMPSON, C. Environmental assessment report:	So1	ve	n + 1	Refi	red.
Coal (SRC) systems					
[PB-300383/7]	25	рO	179	N80-	-15676
THOMPSON, J.					
Power sources 7: Research and deve non-mechanical electrical power Proceedings of the Eleventh Inte	101	one:	at :	in	
non-mechanical electrical power	SOL	irc	es;		
Proceedings of the Eleventh Inte	rna	ıti.	ona:	1	
Symposium, Brighton, Sussex, Eng	laı	ıd,	Se	pteml	er
25-28, 1978					
					-11837
Failure mechanisms of vented nicke	1-0	cad	miu:	m ce	lls
in overcharge		_			
	25	рO	010	A80-	-11840
THOR SHESS, C. B.					
Laboratory coal gasifier facility		_			
[UCBL-82602]	25	₽Û	106	N80-	-11249
TIBRNEY, P.					
Assessment of the applicability of	; ti	ne	nat	iona.	L 1
fire weather data library to win	ם פ	ene	rgy	ana.	yses
	25	pυ	105	MSO-	- 1465
TILLER, J. S.		a b -	.1-	a #	
Southeastern forum on appropriate	25	-00	110	A N O V	-1196
[PB-298796/4] TIMBARIO. T. J.	40	ΡŪ	118	HOO.	1190
ILEDARIU, I. J.					

Status of alcohol fuels utilization technology for

A new approach to low cost large area selective

Performance of an inexpensive constant flow solar

surfaces for photothermal conversion
25 p0003 A80-10845

25 p0135 N80-13283

25 p0150 N80-14263

25 p0003 A80-10846

TSAI, M.-C.

system

[LBL-7070]

TSANG, C. P.
Aquifer thermal energy storage

TSAEG, J. S. K.

Two-dimensional heating analysis of fusion blankets for synfuel production

stationary gas turbines [HCP/M2098-03]

TISON, R. R.
High-BTU coal gasification processes
[ANL/CES/TE-79-2] 25

collector/storage system in ground

```
TODD, A. H. H.
    Low-aspect-ratio limit of the toroidal reactor -
      The spheromak
                                                       25 p0058 A80-17876
TOROB, M. Z.
    Concept of tokamak-type reactor with 
high-temperature blanket
                                                       25 p0059 A80-17885
    End plugging of a hot linear theta pinch
25 p0055 A8C-17824
TORPY, M. P.
    Energy development vs water quality in the upper
Colorado and upper Missouri River Basins
[LA-7497-MS] 25 p0117 880-1
                                                       25 p0117 N80-11641
TORRO, J.
    Phase 2 of the array automated assembly task for
the low cost silicon solar array project
[NASA-CE-162426] 25 p0110 N80-11565
    The possibilities of increasing gas turbine efficiency
                                                       25 p0032 A80-13024
TOTH, W. J.
    Geothermal energy markets on the Atlantic coastal
       plain
                                                       25 p0016 A80-11978
    Geothermal energy market study on the Atlantic coastal plain. Economic evaluation model for direct use of moderate temperature, up to 250 F, geothermal resources in the northern Atlantic
       coastal plain
[FB-298785/7]
    LFB-Z98785/7] 25 p0165 N80-14578
Energy program at the Johns Hopkins University
Applied Physics Laboratory
[PB-310245/71
TOUSKOVA, A.

High-efficiency alkaline accumulator with cadmium mass treated with oxalic acid
                                                       25 p0010 A80-11842
TRACEY, T. B.

Low-cost central receiver solar power plant using molten salt as a heat transfer and storage medium 25 p0017 A80-11986
TRAEGER, R. K. Coal liquefaction short residence time process
       research
        [SAND-79-1400]
                                                        25 p0133 N80-13272
    Low temperature reaction path for coal liquefaction [SAND-79-0738C] 25 p0169 N80-1528
                                                        25 p0169 N80-15288
TRANKEL, B. C.
    Heat pump centered integrated community energy systems; System development
        [ANL-ICES-TH-28]
                                                        25 p0111 N80-11574
TRIFFET, T.

West Coast Forum on Appropriate Technology
25 p0166 N80-14962
TRIGG, E.
Preliminary analysis of a total solar heating system
[ASME PAPER 79-WA/SOL-40] 25 p0069 A80-18583
     Non-linear theory of collective processes in
       laser-pellet interaction and soliton generation
25 p0057 A80-17870
TROITSKII, Y. V.

Dynamics of diesel fuel combustion in turbulent flow
                                                        25 p0091 N80-10074
TROSBEBBIN, B. O.
Utilization of ocean heat for hydrogen production
25 p0086 A80-20686
 TROYON, P.
     Dependence of ideal MHD beta limits on current
        density and pressure profiles
                                                        25 E0054 A80-17790
TRUSCELLO, V. C.
Heat and electricity from the sun using parabolic
        dish collector systems
                                                        25 p0037 A80-14706
```

Catalysis of hydrogen transfer in a tetralin-coal

25 p0019 A80-12246

25 p0176 N80-15618

25 p0082 A80-19665

TIVARI. P. K.

TIWARI. G. N.

One- and two-dimensional heating a	nalvege of	00, K.	
fusion synfuel blankets	maryses or	Study of current-driven magnetohyd	trodunani o
[BNL-NUREG-25635]	25 p0104 N80-10922	instability in the Heliotron-D	levice
TSARENKOV, B. V.			25 p0084 A80-20159
Broadband varizone Ga/1-x/Al/x/As- converters with an illuminated r	51-photoelectric	URI, No D.	
	25 p0044 A80-16626	Identification of a methodology fo short-term crude petroleum produ	
TSATSOF, K. K.	-	United States	Ction in the
Ion-stimulated sorption of nitroge	n on a	[DOE/EIA-0103/14]	25 p0122 N80-12542
continuously deposited titanium		ORSO, I.	_
TSIEN, H. C.	25 p0051 A80-17252	A mathematical model for a future	hydrogen power
Zinc-bromine battery studies		system	25 p0001 A80-10223
	25 p0010 A80-11845	USHAKOVA, A. D.	23 pood: 800-10223
TSUKISHIMA, T.		Results of interdepartmental tests	of solar water
Measurements of the density fluctor microwave scattering method	ations using the	heaters over an annual cycle. I	25 2254 222 48245
-1010Wave boattering method	25 p0046 A80-16731	UTSUNI, H.	25 p0051 A80-17245
TSURIKOV, V. A.	-	Combined effects of polycyclic aro	matic
Past-magnetosonic-wave excitation	in large-tokamak	hydrocarbons and sunlight	
plasmas	25 p0C56 A80-17855		25 p0131 N80-12631
TURCHAN, H. J.	25 pousu 200-17055	UTZINGER, D. M. A method of estimating monthly ave	rage colar
Development of silver-hydrogen cel	.ls	radiation on shaded receivers	rage Solar
	25 p0010 A80-11843		25 p0060 A80-18123
TURCHI, P. J. Optimization of stabilized implodi	ng liner fucion		
reactors	ng liner rusion	V	
	25 p0079 A80-19593	VALEO, E. J.	
TUREBULL, P. G.	•	Tearing modes in a plasma with mag	netic traiding
Regenerative flywheel energy stora		_	25 p0006 A80-11349
[UCRL-13982] TURNER, A. K.	25 p0112 N80-11594	Steady-state currents driven by co	llisionally
Interactive analysis methods for r	esource mapping	damped lower-hybrid waves	25 p0084 A80-20157
•	25 p0008 A80-11709	VAN BEEK, J. R.	25 p0004 800-20157
TORNER, G. U.		Behaviour of the secondary lithium	electrode on
Efficient shallow-homojunction Gammolecular beam epitaxy	s solar cells by	alloying substrates in propylene	carbonate based
	25 p0035 A80-13986	electrolytes	25 =0.012 100-11057
TURNER, R.	-	VAN DER LEIJ, M.	25 p0012 A80-11857
Superconducting magnetic energy st	orage for	Cobalt oxide as a spectrally selec	tive material
electric power system dynamic st [LA-UR-79-1220]		for use in solar collectors	
TURNER, W. D.	25 p0160 N80-14535	VAN HEEK, K. H.	25 p0086 A80-20719
Thermal energy utilization in the	Mississippi	An update of German non-isothermal	coal pyrolysis
County Community College Photovo		work	
[ASHE PAPER 79-WA/SOL-29]	25 p0068 A80-18575		25 p0019 A80-12245
TYL, J.  Effect of kinetics of thermonuclea	r reaction	VAN ROTTEN, P.	- 1
products upon D-T plasma paramet		A system for the control of tritiu primary and steam circuits of a	m losses in fusion power plant
	25 p0007 A80-11544		25 p0082 A80-19668
		VANDERBORGH, N. E.	=
TINER, C. B.	1	Night storage and backup generatio	
Overview of in situ oil shale tech			n with
Overview of in situ oil shale tech recent advances in true in situ	retort modeling	electrochemical engines	
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C] TZIVELEKAS, I.	retort modeling 25 p0122 N80-12543	electrochemical engines	n with 25 p0113 N80-11596
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C] TZIVELEKAS, I. Unconventional circuits for static	retort modeling 25 p0122 N80-12543	electrochemical engines [LA-UR-78-1149] VANGOOL, W- Constraints on energy conservation	25 p0113 N80-11596
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C] TZIVELEKAS, I. Unconventional circuits for static transformers	retort modeling 25 p0122 N80-12543 voltage	electrochemical engines [IA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]	25 p0113 N80-11596
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C] TZIVELEKAS, I. Unconventional circuits for static transformers	retort modeling 25 p0122 N80-12543	electrochemical engines [IA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IIA-78-17(M)] Fundamental aspects of energy cons	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C] TZIVELEKAS, I. Unconventional circuits for static transformers	retort modeling 25 p0122 N80-12543 voltage	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/JIA-78-17 (M)]  Pundamental aspects of energy cons [ORAU/LBA-78-20 (M)]	25 p0113 N80-11596
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C] TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]	retort modeling 25 p0122 N80-12543 voltage	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)] Fundamental aspects of energy cons [ORAU/IFA-78-20(M)]  VANSTOB, J. B. Feasibility study for enhancing th	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy 25 p0127 N80-12595
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C] TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  UCKAN, H. A.	retort modeling 25 p0122 N80-12543 : voltage 25 p0107 N80-11368	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Fundamental aspects of energy cons [ORAU/IEA-78-20(M)]  VANSTOW, J. H.  Feasibility study for enhancing th fusion energy	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development cf
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C] TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  U UCKAN, B. A. The Elmo Bumpy Torus /EBT/ reactor	retort modeling 25 p0122 N80-12543 voltage 25 p0107 N80-11368	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Pundamental aspects of energy cons [ORAU/IFA-78-20(M)]  VANSTOB, J. B.  Feasibility study for enhancing th fusion energy [FPRI-BR-778-SR]	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy 25 p0127 N80-12595
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C] TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  U UCKAN, B. A. The Elmo Bumpy Torus /EBT/ reactor	retort modeling 25 p0122 N80-12543 : voltage 25 p0107 N80-11368	electrochemical engines [IA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Fundamental aspects of energy cons [ORAU/IFA-78-20(M)]  VANSTOB, J. B. Feasibility study for enhancing th fusion energy [EPRI-ER-778-SE]  VAREY, G. B.	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development cf 25 p0178 N80-15642
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C] TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  U UCKAN, B. A. The Elmo Bumpy Torus /EBT/ reactor UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17 (M)]  Pundamental aspects of energy cons [ORAU/IEA-78-20 (M)]  VANSTOW, J. H.  Feasibility study for enhancing th fusion energy [EPRI-ER-778-SR]  VAREY, G. B.  The simulation of building heat tr passive solar systems	25 p0113 N80-11596  25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development of 25 p0178 N80-15642 ansfer for
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  U  UCKAN, H. A. The Elmo Bumpy Torus /EBT/ reactor UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey:	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Fundamental aspects of energy cons [ORAU/IFA-78-20(M)]  VANSTOB, J. B.  Feasibility study for enhancing th fusion energy [EPRI-ER-778-SR]  VAREY, G. B.  The simulation of building heat tra passive solar systems [ASME PAPER 79-WA/SOL-38]	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development cf 25 p0178 N80-15642
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMPT-FB-T-78-26]  U  UCKAN, B. A. The Elmo Bumpy Torus /EBT/ reactor  UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IEA-78-17(M)]  Pundamental aspects of energy cons [ORAU/IEA-78-20(M)]  VANSTOW, J. H.  Feasibility study for enhancing th fusion energy [FPRI-ER-778-SR]  VAREI, G. B.  The simulation of building heat tr. passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEN, T. C.	25 p0113 N80-11596  25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development of 25 p0178 N80-15642 ansfer for 25 p0067 A80-18574
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367c]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  U  UCKAN, H. A. The Elmo Bumpy Torus /EBT/ reactor  UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A.	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IIA-78-17(M)]  Pundamental aspects of energy cons [ORAU/IEA-78-20(M)]  VANSTOW, J. B.  Feasibility study for enhancing th fusion energy [EPRI-ER-778-SR]  VARBI, G. B.  The simulation of building heat tr passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLIJEM, T. C. Fuel production characteristics of	25 p0113 N80-11596  25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development of 25 p0178 N80-15642 ansfer for 25 p0067 A80-18574
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMPT-FB-T-78-26]  UCKAN, B. A. The Elmo Bumpy Torus /EBT/ reactor  UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A. Developments for the high voltage superconducting coils	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682 test of pulsed	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Fundamental aspects of energy cons [ORAU/IFA-78-20(M)]  VANSTOB, J. B.  Feasibility study for enhancing th fusion energy [EPRI-ER-778-SE]  VAREY, G. B.  The simulation of building heat tr. passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEB, T. C. Fuel production characteristics of reactors	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development cf 25 p0178 N80-15642 ansfer for 25 p0067 A80-18574 fusion hybrid
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  U  UCKAN, B. A. The Elmo Bumpy Torus /EBT/ reactor  UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A. Developments for the high voltage superconducting coils	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IEA-78-17(M)] Fundamental aspects of energy cons [ORAU/IEA-78-20(M)]  VANSTOW, J. B.  Feasibility study for enhancing th fusion energy [FPFI-EB-778-SR]  VARBY, G. B.  The simulation of building heat tr. passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEB, T. C. Fuel production characteristics of reactors	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development of 25 p0178 N80-15642 ansfer for 25 p0067 A80-18574 fusion bybrid 25 p0059 A80-17888
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  UCKAN, N. A. The Elmo Bumpy Torus /EBT/ reactor UIHLEIN, J. EPA utility PGD (Plue Gas Desulfur December 1978 - January 1979 [PB-299399/6] ULBRICHT, A. Developments for the high voltage superconducting coils ULLAL, H. S.	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682 test of pulsed 25 p0081 A80-19655	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Fundamental aspects of energy cons [ORAU/IFA-78-20(M)]  VANSTOB, J. B.  Feasibility study for enhancing th fusion energy [EPRI-ER-778-SR]  VAPEY, G. B.  The simulation of building heat tr: passive solar systems [ASME PAPER 79-WA/SOL-38]  VARIAJER, T. C. Fuel production characteristics of reactors  VARMA, H. K. Design of 1-ton solar operated Libit	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development cf 25 p0178 N80-15642 ansfer for 25 p0067 A80-18574 fusion bybrid 25 p0059 A80-17888
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  UCKAN, B. A. The Elmo Bumpy Torus /EBT/ reactor  UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A. Developments for the high voltage superconducting coils  ULLAL, B. S. Photovoltaic energy conversion in	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682 test of pulsed 25 p0081 A80-19655 polymer films	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Pundamental aspects of energy cons [ORAU/IFA-78-20(M)]  VANSTOB, J. B.  Peasibility study for enhancing th fusion energy [EPRI-ER-778-SR]  VAREI, G. B.  The simulation of building heat tr passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEB, T. C.  Fuel production characteristics of reactors  VARMA, B. K.  Design of 1-ton solar operated LiBi air-conditioning system with spec	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development cf 25 p0178 N80-15642 ansfer for 25 p0067 A80-18574 fusion bybrid 25 p0059 A80-17888
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  UCKAN, B. A. The Elmo Bumpy Torus /EBT/ reactor  UIRLEIN, J. EPA utility PGD (Plue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A. Developments for the high voltage superconducting coils  ULLAL, B. S. Photovoltaic energy conversion in  ULRICH, W. C.	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682 test of pulsed 25 p0081 A80-19655 polymer films 25 p0154 N80-14477	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Pundamental aspects of energy cons [ORAU/IEA-78-20(M)]  VANSTOW, J. H.  Feasibility study for enhancing th fusion energy [FPRI-ER-778-SR]  VAREI, G. B.  The simulation of building heat tr. passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEN, T. C.  Fuel production characteristics of reactors  VARMA, H. K.  Design of 1-ton solar operated Libitar-conditioning system with spec	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development of 25 p0178 N80-15642 ansfer for 25 p0067 A80-18574 fusion hybrid 25 p0059 A80-17888 r-water cial reference
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  UCKAN, B. A. The Elmo Bumpy Torus /EBT/ reactor  UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A. Developments for the high voltage superconducting coils  ULLAL, B. S. Photovoltaic energy conversion in  ULRICH, W. C. Economics of gasoline production f	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682 test of pulsed 25 p0081 A80-19655 polymer films 25 p0154 N80-14477 rom underground	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Pundamental aspects of energy cons [ORAU/IFA-78-20(M)]  VANSTOB, J. B.  Peasibility study for enhancing th fusion energy [EPRI-ER-778-SR]  VAREI, G. B.  The simulation of building heat tr passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEB, T. C.  Fuel production characteristics of reactors  VARMA, B. K.  Design of 1-ton solar operated LiB: air-conditioning system with spectors solar part	25 p0113 N80-11596  25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development of 25 p0178 N80-15642 ansfer for 25 p0067 A80-18574 fusion hybrid 25 p0059 A80-17888 r-water cial reference 25 p0025 A80-12759
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  U  UCKAN, H. A. The Elmo Bumpy Torus /EBT/ reactor  UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A. Developments for the high voltage superconducting coils  ULIAL, H. S. Photovoltaic energy conversion in  ULRICH, W. C. Economics of gasoline production f coal gasification via mobil-N pr	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682 test of pulsed 25 p0081 A80-19655 polymer films 25 p0154 N80-14477 rom underground ocess	electrochemical engines [IA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IEA-78-17(M)]  Fundamental aspects of energy cons [ORAU/IEA-78-20(M)]  VANSTOW, J. B.  Feasibility study for enhancing th fusion energy [FPRI-EB-778-SR]  VARBY, G. B.  The simulation of building heat tr. passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEN, T. C.  Fuel production characteristics of reactors  VARMA, B. K. Design of 1-ton solar operated LiB: air-conditioning system with spectors of the solar part  VARMA, S. Experimental study of MOS solar celebrates.	25 p0113 N80-11596  25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development of 25 p0178 N80-15642 ansfer for 25 p0067 A80-18574 fusion hybrid 25 p0059 A80-17888 r-water cial reference 25 p0025 A80-12759
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  U  UCKAN, H. A. The Elmo Bumpy Torus /EBT/ reactor  UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A. Developments for the high voltage superconducting coils  ULIAL, H. S. Photovoltaic energy conversion in  ULRICH, W. C. Economics of gasoline production f coal gasification via mobil-N pr	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682 test of pulsed 25 p0081 A80-19655 polymer films 25 p0154 N80-14477 rom underground	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Fundamental aspects of energy cons [ORAU/IFA-78-20 (M)]  VANSTOB, J. B.  Feasibility study for enhancing th fusion energy [EPBI-ER-778-SR]  VAREY, G. B.  The simulation of building heat tr. passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEN, T. C. Fuel production characteristics of reactors  VARMA, B. K. Design of 1-ton solar operated Libitatic conditioning system with spectors solar part  VARMA, S. Experimental study of MOS solar celeconcentration	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development cf 25 p0178 N80-15642 ansfer for 25 p0067 A80-18574 fusion hybrid 25 p0059 A80-17888 r-water cial reference 25 p0025 A80-12759 11s under
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  U  UCKAN, B. A. The Elmo Bumpy Torus / FBT/ reactor  UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A. Developments for the high voltage superconducting coils  ULIAL, B. S. Photovoltaic energy conversion in  ULRICH, W. C. Economics of gasoline production f coal gasification via mobil-N pr [CONF-790405-12]  ULSETH, G. W. Barriers to the application of vin	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682 test of pulsed 25 p0081 A80-19655 polymer films 25 p0154 N80-14477 rom underground ocess 25 p0106 N80-11246 d energy	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Pundamental aspects of energy cons [ORAU/IFA-78-20(M)]  VANSTOB, J. B.  Peasibility study for enhancing th fusion energy [EPBI-EB-778-SE]  VAREI, G. B.  The simulation of building heat tr passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEB, T. C.  Fuel production characteristics of reactors  VARMA, B. K.  Design of 1-ton solar operated LiBi air-conditioning system with spec to solar part  VARMA, S.  Experimental study of MOS solar ce- concentration	25 p0113 N80-11596  25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development of 25 p0178 N80-15642 ansfer for 25 p0067 A80-18574 fusion hybrid 25 p0059 A80-17888 r-water cial reference 25 p0025 A80-12759 11s under
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  UCKAN, H. A. The Elmo Bumpy Torus /EBT/ reactor  UIHLEIN, J. EPA utility PGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A. Developments for the high voltage superconducting coils  ULLAL, H. S. Photovoltaic energy conversion in  ULRICH, W. C. Economics of gasoline production f coal gasification via mobil-M pr [CONF-790405-12]  ULSETH, G. W. Barriers to the application of vin conversion systems in urban sett	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883  ization) survey: 25 p0179 N80-15682 test of pulsed 25 p0081 A80-19655 polymer films 25 p0154 N80-14477 rom underground occess 25 p0106 N80-11246 d energy ings	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Fundamental aspects of energy cons [ORAU/IFA-78-20 (M)]  VANSTOB, J. B.  Feasibility study for enhancing th fusion energy [EPBI-ER-778-SR]  VAREY, G. B.  The simulation of building heat tr. passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEN, T. C. Fuel production characteristics of reactors  VARMA, B. K. Design of 1-ton solar operated Libitair-conditioning system with spectors solar part  VARMA, S. Experimental study of MOS solar celeconcentration  Experimental investigation of variametals for Schottky barrier and	25 p0113 N80-11596  25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development cf  25 p0178 N80-15642 ansfer for  25 p0067 A80-18574 fusion hybrid  25 p0059 A80-17888 r-water cial reference  25 p0025 A80-12759 11s under  25 p0026 A80-12769 ous barrier MOS solar cells
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  U  UCKAN, H. A. The Elmo Bumpy Torus /EBT/ reactor UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A. Developments for the high voltage superconducting coils  ULLAL, H. S. Photovoltaic energy conversion in  ULRICH, W. C. Economics of gasoline production f coal gasification via mobil-N pr [CONF-790405-12]  ULSETH, G. W. Barriers to the application of vin conversion systems in urban sett	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682 test of pulsed 25 p0081 A80-19655 polymer films 25 p0154 N80-14477 rom underground ocess 25 p0106 N80-11246 d energy	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Pundamental aspects of energy cons [ORAU/IFA-78-20(M)]  VANSTOB, J. H.  Peasibility study for enhancing th fusion energy [EPEN-ER-778-SE]  VAREI, G. B.  The simulation of building heat tr passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEB, T. C.  Fuel production characteristics of reactors  VARMA, H. K.  Design of 1-ton solar operated LiB: air-conditioning system with spectors solar part  VARMA, S.  Experimental study of MOS solar ceconcentration  Experimental investigation of variametals for Schottky barrier and investi	25 p0113 N80-11596 25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development of 25 p0178 N80-15642 ansfer for 25 p0067 A80-18574 fusion bybrid 25 p0059 A80-17888 r-water cial reference 25 p0025 A80-12759 11s under 25 p0026 A80-12769 ous barrier
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMFT-FB-T-78-26]  U  UCKAN, B. A. The Elmo Bumpy Torus /EBT/ reactor  UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A. Developments for the high voltage superconducting coils  ULLAL, B. S. Photovoltaic energy conversion in  ULRICH, W. C. Economics of gasoline production f coal gasification via mobil-H pr [CONF-790405-12]  ULSETH, G. W. Barriers to the application of vin conversion systems in urban sett  UMAROV, G. G.	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682 test of pulsed 25 p0081 A80-19655 polymer films 25 p0154 N80-14477 rom underground ocess 25 p0106 N80-11246 d energy ings 25 p0155 N80-14494	electrochemical engines [IA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)] Fundamental aspects of energy cons [ORAU/IFA-78-20(M)]  VANSTOW, J. B. Feasibility study for enhancing th fusion energy [FPRI-ER-778-SR]  VARBY, G. B.  The simulation of building heat tr. passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEN, T. C. Fuel production characteristics of reactors  VARMA, B. K. Design of 1-ton solar operated LiB: air-conditioning system with spectors  VARMA, S. Experimental study of MOS solar celectors  VARMA, S. Experimental investigation of variation metals for Schottky barrier and investigation of variation metals for Schottky barrier and investigation.	25 p0113 N80-11596  25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development cf  25 p0178 N80-15642 ansfer for  25 p0067 A80-18574 fusion hybrid  25 p0059 A80-17888 r-water cial reference  25 p0025 A80-12759 11s under  25 p0026 A80-12769 ous barrier MOS solar cells
Overview of in situ oil shale tech recent advances in true in situ [SAND-78-2367C]  TZIVELEKAS, I. Unconventional circuits for static transformers [BMPT-FB-T-78-26]  U  UCKAN, B. A. The Elmo Bumpy Torus /EBT/ reactor  UIHLEIN, J. EPA utility FGD (Flue Gas Desulfur December 1978 - January 1979 [PB-299399/6]  ULBRICHT, A. Developments for the high voltage superconducting coils  ULLAL, H. S. Photovoltaic energy conversion in  ULRICH, W. C. Economics of gasoline production f coal gasification via mobil-N pr [CONP-790405-12]  ULSETH, G. W. Barriers to the application of win conversion systems in urban sett  UMAROV, G. G. Investigation of aerodynamic drag heaters	retort modeling 25 p0122 N80-12543  voltage 25 p0107 N80-11368  25 p0058 A80-17883 ization) survey: 25 p0179 N80-15682 test of pulsed 25 p0081 A80-19655 polymer films 25 p0154 N80-14477 rom underground ocess 25 p0106 N80-11246 d energy ings 25 p0155 N80-14494	electrochemical engines [LA-UR-78-1149]  VANGOOL, W.  Constraints on energy conservation [ORAU/IFA-78-17(M)]  Fundamental aspects of energy cons [ORAU/IFA-78-20 (M)]  VANSTOB, J. B.  Feasibility study for enhancing th fusion energy [EPBI-ER-778-SR]  VAREY, G. B.  The simulation of building heat tr. passive solar systems [ASME PAPER 79-WA/SOL-38]  VARLJEN, T. C. Fuel production characteristics of reactors  VARMA, H. K.  Design of 1-ton solar operated Libitair-conditioning system with spectors solar part  VARMA, S.  Experimental study of MOS solar celeconcentration  Experimental investigation of variametals for Schottky barrier and investigation of the future  VARSHAYSKII, I. L.  Hydrogen - The fuel of the future	25 p0113 N80-11596  25 p0127 N80-12594 ervation policy 25 p0127 N80-12595 e development cf  25 p0178 N80-15642 ansfer for  25 p0067 A80-18574 fusion hybrid  25 p0059 A80-17888 r-water cial reference  25 p0025 A80-12759 11s under  25 p0026 A80-12769 ous barrier MOS solar cells

25 p0044 A80-16631

VARUGHESE, A. Solar absorption spectra of PbS-A systems	l and PbSe-Al	VINOGRADOVA, B. B. Photoelectric parameters of photoelectric converters in relation to illumination	
-	25 p0027 A80-12781 .		A80-16627
VAS, I. E. Wind energy innovative systems [SEBI/PR-13-054]	25 p0.144 N80-13674	VIRMONT, J. Experimental studies of interaction and tra processes in laser fusion	
VASAGAM, R. M.		25 p0057	A80-17864
Enhanced power generation of GSS/ solar reflectors		VLASES, G. C. Fuel production characteristics of fusion h	bybrid
VASILEY, N. N.	25 p0038 A80-14948	reactors 25 n0059	A80-17888
Concept of tokamak-type reactor w	ith	VOGEL, R. W.	
high-temperature blanket	25 p0059 A80-17885	Energy policy and decision analysis; new co and mechanisms	•
VASILEY, V. P. Induced fields in the motion of a	conducting	[LA-7909-MS] 25 p0140 VOGT, W. G.	N80-13634
medium in the field of an air-c		Modeling and simulation. Volume 10 - Procee	edinas
WAUGHAN, J. C., III	25 p0061 A80-18138	of the Tenth Annual Pittsburgh Conference University of Pittsburgh, Pittsburgh, Pa.	, April
Multirole cargo aircraft options [NASA-TM-80177]	and configurations 25 p0105 N80-11053	25-27, 1979. Part 2 - Systems and control	L   <b>A80-20</b> 862
VAYENAS, C. G.	-	Modeling and simulation. Volume 10 - Procee	edings
A single coal particle gasificati	on model 25 p0088 A80-20884	of the Tenth Annual Pittsburgh Conference University of Pittsburgh, Pittsburgh, Pa.	April
WBDBL, J. M. Work on laser interaction and imp	losion at Centre	25-27, 1979. Part 3 - Energy and environm	Ment A80-20881
d'Etudes de Limeil		VON ARX, W. S.	
VELIKANOV, D. P.	25 p0057 A80-17863	Prospects - A social context for natural so	
Automobile transportation and the	environment 25 p0072 A80-18734	VORONOV, G. S. Current equilibrium and effective ion charge	A80-16651
VELIKOV, V. V.	-	L-2 stellarator plasma	e II
Some problems with variable opera generator		VOSS, A.	A80-17829
VENERO, A. P.	25 p0035 A80-14530	Waves, currents, tides - Problems and prosp 25 p0049	A80-17134
Zinc-bromine battery studies	25 p0010 A80-11845	VUORI, S. Evaluation of nuclear power plant siting by	_
VENKATARAMANI, G.	25 poorto 200-11045	probabilistic assessment of environmental	
Energy plantation for coromandel		[VTT-EN-24] 25 p0118	N80-11891
VERKATESH, A.	25 p0023 A80-12742	WYGOVSKII, W. P. Heat flow and heat transfer conditions in t	· he
Experimental investigations of an	intermittent		
ammonia-water solar refrigerato		bottom sediments of the equatorial Indian 25 p0075	
ammonia-water solar refrigerato		25 p0075	A80-19048
ammonia-water solar refrigerato  VENKATESWABLU, U.  Programme and progress of DST spo	r 25 p0028 A80-12786	25 p0075 <b>W</b>	
ammonia-water solar refrigerato VENKATESWARLU, U. Programme and progress of DST spo photovoltaic work in India	r 25 p0028 A80-12786	W  WADE, D. W. Heat pump centered integrated community ene	A80-19048
ammonia-water solar refrigerato  VENKATESWARLU, U. Programme and progress of DST spo photovoltaic work in India  VERCARMERT, P.	r 25 p0028 A80-12786 nsored solar 25 p0025 A80-12760	WADE, D. W. Heat pump centered integrated community energy systems; System development	A80-19048
ammonia-water solar refrigerato  VENKATES WARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCARMENT, P.  A simplified procedure for perfor systems with heat rumps	r 25 p0028 A80-12786 nsored solar 25 p0025 A80-12760 mance of solar	W WADE, D. W. Heat pump centered integrated community ene systems; System development [ANL-ICFS-TM-28] 25 p0111 WADE, W. H.	A80-19048 ergy N80-11574
ammonia-water solar refrigerato  VENKATESWARLU, U. Programme and progress of DST spo photovoltaic work in India  VERCARMERT, P. A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]	r 25 p0028 A80-12786 nsored solar 25 p0025 A80-12760	WADB, D. W. Heat pump centered integrated community ene systems; System development [ANL-ICES-TH-28] 25 poll11 WADB, W. H. Tertiary oil recovery processes research at	A80-19048 ergy N80-11574
ammonia-water solar refrigerato  VENKATES WARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMENT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOTPP, J. Environmental data for energy tec	25 p0028 A80-12786  nsored solar 25 p0025 A80-12760  mance of solar 25 p0065 A80-18555	WADE, D. W. Heat pump centered integrated community ene systems; System development [ANL-ICES-TM-28] 25 p0111 WADE, W. H. Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108	A80-19048 ergy N80-11574
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCARMERT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOUFF, J. Environmental data for energy tec analysis. Volume 1: Summary	r 25 p0028 A80-12786 nsored solar 25 p0025 A80-12760 mance of solar 25 p0065 A80-18555 hnology policy	WADE, D. W. Heat pump centered integrated community ene systems; System development [ANL-ICES-TM-28] 25 point WADE, W. H. Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 point WARGLI, P.	2 x 3 x 3 x 4 x 4 x 4 x 4 x 4 x 4 x 4 x 4
ammonia-water solar refrigerato  VENKATES WARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMENT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOTPP, J. Environmental data for energy tec	25 p0028 A80-12786  nsored solar 25 p0025 A80-12760  mance of solar 25 p0065 A80-18555	WADR, D. W. Heat pump centered integrated community ene systems; System development [ANL-ICIS-TH-28] 25 p0111 WADB, W. H. Tertiary oil recovery processes research at University of Texas [ETTC-0001-1] 25 p0108 WAEGLI, P. Laser fusion implications of resonance abso	A80-19048 ergy  880-11574 the  N80-11544
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat pumps [ASME PAPER 79-WA/SOL-23]  VERHOEFF, J.  Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERMEULEW, P. E. Physical modelling of the electro	r 25 p0028 A80-12786 nsored solar 25 p0025 A80-12760 mance of solar 25 p0065 A80-18555 hnology policy 25 p0098 N80-10629 magnetic heating	W  WADE, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICES-TM-28] 25 p0111  WADE, W. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WAEGLI, P.  Laser fusion implications of resonance absonand associated electrostatic field pressured.	A80-19048 ergy  880-11574 the  N80-11544
ammonia-water solar refrigerato  VENKATES WARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOTPP, J.  Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERMEULBB, P. E.	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological	WADR, D. W. Heat pump centered integrated community ene systems; System development [ANL-ICES-TM-28] 25 p0111 WADB, W. H. Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108 WAEGLI, P. Laser fusion implications of resonance abso and associated electrostatic field pressu 25 p0057 WAGH, A. S.	A80-19048 ergy  N80-11574 the  N80-11544 erption are A80-17869
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat pumps [ASME PAPER 79-WA/SOL-23]  VERHOFF, J.  Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERMEULBW, P. E.  Physical modelling of the electro of oil sand and other earth-typ materials	r 25 p0028 A80-12786 nsored solar 25 p0025 A80-12760 mance of solar 25 p0065 A80-18555 hnology policy 25 p0098 N80-10629 magnetic heating	W  WADE, D. W. Heat pump centered integrated community energy systems; System development [ANL-ICZS-TH-28] 25 p0111  WADE, W. H. Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WAEGLI, P. Laser fusion implications of resonance absortion and associated electrostatic field pressured and associated electrostatic field pressured associated electrostatic field pressured associated associated electrostatic field pressured associated electrostatic	A80-19048 ergy N80-11574 the N80-11544 erption le A80-17869
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCARMERT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOEFP, J.  Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERMEDIEN, F. E. Physical modelling of the electro of oil sand and other earth-typ	25 p0028 A80-12786  nsored solar 25 p0025 A80-12760  mance cf solar 25 p0065 A80-18555  hnology policy 25 p0098 N80-10629  magnetic heating e and biological 25 p0020 A80-12311	WADR, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICES-TM-28] 25 poll11  WADB, W. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 poll08  WAEGLI, P.  Laser fusion implications of resonance absorand associated electrostatic field pressured and associated electrostatic field pressured associated ele	A80-19048 ergy  N80-11574 the  N80-11544 erption are A80-17869
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat pumps [ASME PAPER 79-WA/SOL-23]  VERHOFF, J.  Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERNEULBM, F. E.  Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, F. E. Modeling and experimental analysi generator	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311  s of a fluidic	W  WADE, D. W. Heat pump centered integrated community energy systems; System development [ANL-ICES-TH-28] 25 p0111  WADE, W. H. Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WAEGLI, P. Laser fusion implications of resonance absorped and associated electrostatic field pressured as and associated electrostatic field pressured as Solar absorption spectra of PbS-Al and PbSe systems 25 p0027  WAGHER, S. Current U. S. petroleum situation and short	A80-19048  ergy  N80-11574  the  N80-11544  erption  ae  A80-17869
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOEPP, J.  Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERNEULEB, P. E.  Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, P. E. Modeling and experimental analysi	25 p0028 A80-12786  nsored solar 25 p0025 A80-12760  mance cf solar 25 p0065 A80-18555  hnology policy 25 p0098 N80-10629  magnetic heating e and biological 25 p0020 A80-12311	WADR, D. W. Heat pump centered integrated community energy systems; System development [ANL-ICES-TM-28] 25 p0111 WADR, W. H. Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108 WARGLI, P. Laser fusion implications of resonance absorand associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured by p0057 WAGH, A. S. Solar absorption spectra of PbS-Al and PbSe systems 25 p0027 WAGNER, S. Current U. S. petroleum situation and short supply/demand outlook	A80-19048 ergy N80-11574 the N80-11544 erption are A80-17869 e-A1 A80-12781
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCARMERT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOCFF, J.  Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERMEULEB, F. E.  Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, F. E.  Modeling and experimental analysi generator [ASME PAPER 79-DET-9]	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311 s of a fluidic  25 p0041 A80-15705	WASHER, S. Current U. S. petroleum situation and short supply/demand outlook  [DOI/EIA-0.184/5]  WABIR, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICZS-TH-28]  25 p0111  WADE, U. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1]  WAGELI, P.  Laser fusion implications of resonance absoluted advanced absoluted electrostatic field gressured and associated electrostatic field gressured by the systems 25 p0057  WAGHER, A. S.  Solar absorption spectra of PbS-Al and PbSet systems 25 p0027  WAGNER, S.  Current U. S. petroleum situation and short supply/demand outlook [DOI/EIA-0184/5]  WARIG, M.	A80-19048 ergy N80-11574 the N80-11544 erption le A80-17869 e-A1 A80-12781 e-term N80-13607
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOEFF, J. Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERNEULEM, F. E. Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, F. E. Modeling and experimental analysi generator [ASME PAPER 79-DET-9]  VERSCHUUR, K. A. Neutronics in the toroidal belt-g screw pinch reactor	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311 s of a fluidic  25 p0041 A80-15705	WADE, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICES-TM-28] 25 p0111  WADE, W. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WAEGLI, P.  Laser fusion implications of resonance absonand associated electrostatic field pressured 25 p0057  WAGH, A. S.  Solar absorption spectra of PbS-Al and PbSe systems 25 p0027  WAGHER, S.  Current U. S. petroleum situation and short supply/demand outlook [DOI/EIA-0184/5] 25 p0138  WAHIG, M.  Circumsolar radiation data for central recessionalation	A80-19048  Ergy  N80-11574  the  N80-11544  Prption  Ire  A80-17869  E-A1  A80-12781  -term  N80-13607
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCARMERT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOEFF, J.  Environmental data for energy tec analysis. Volume 1: Summary [BCP/EV6119-1]  VERMEULEB, F. E. Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, P. E.  Modeling and experimental analysi generator [ASME PAPER 79-DET-9]  VERSCHUUR, K. A. Neutronics in the toroidal belt-g screw pinch reactor  VEZIROGLU, T. N. Pifth Ocean Thermal Energy Conver	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311  s of a fluidic  25 p0041 A80-15705  econetry of a  25 p0081 A80-19657	WADE, D. W. Heat pump centered integrated community energy systems; System development [ANL-ICES-TM-28] 25 p0111 WADE, W. H. Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108 WARGLI, P. Laser fusion implications of resonance absorand associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured by the systems 25 p0057 WAGH, A. S. Solar absorption spectra of PbS-Al and PbSe systems 25 p0027 WAGHER, S. Current U. S. petroleum situation and short supply/demand outlook [DUF/EIA-0184/5] 25 p0138 WAHIG, M. Circumsolar radiation data for central recessionalation [LBL-8371] 25 p0131 Measurement of circumsolar radiation: Status	A80-19048 ergy N80-11574 the N80-11544 erption A80-17869 e-A1 A80-12781term N80-13607 eiver N80-12647 s report
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOEFF, J. Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERNEULEM, F. E. Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, F. E. Modeling and experimental analysi generator [ASME PAPER 79-DET-9]  VERSCHUUR, K. A. Neutronics in the toroidal belt-g screw pinch reactor  VEZIROGLU, T. N. Pifth Ocean Thermal Energy Conver volume 2, sections 4-5	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311 s of a fluidic  25 p0041 A80-15705  eometry of a  25 p0081 A80-19657  sion Conference,	WADDE, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICES-TM-28] 25 p0111  WADDE, W. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WAEGLI, P.  Laser fusion implications of resonance absorand associated electrostatic field pressured and associated electrostatic field pressured.  WAGH, A. S.  Solar absorption spectra of PbS-Al and PbSesystems 25 p0027  WAGNER, S.  Current U. S. petroleum situation and short supply/demand outlook [DOF/EIA-0184/5] 25 p0138  WAHIG, M.  Circumsolar radiation data for central recessional control of the	A80-19048  rgy  N80-11574  the  N80-11544  rption  re A80-17869  -A1  A80-12781  -term  N80-13607  iver
ammonia-water solar refrigerato  VENKATESWARLU, U. Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P. A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOUPP, J. Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERMEULBB, P. E. Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, F. E. Modeling and experimental analysi generator [ASME PAPER 79-DET-9]  VERSCHOUR, K. A. Neutronics in the toroidal belt-g screw pinch reactor  VEZIROGLU, T. N. Pifth Ocean Thermal Energy Conver volume 2, sections 4-5 [CONF-780236-P2]  VIACHESLAVOV, L. N.	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311 s of a fluidic  25 p0041 A80-15705  eometry of a  25 p0081 A80-19657  sion Conference,	WADDE, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICES-TM-28] 25 p0111  WADDE, W. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WARGLI, P.  Laser fusion implications of resonance absorand associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured by the systems 25 p0057  WAGHE, A. S.  Solar absorption spectra of PbS-Al and PbSe systems 25 p0027  WAGHER, S.  Current U. S. petroleum situation and short supply/demand outlook [DUP/EIA-0184/5] 25 p0138  WAHIG, M.  Circumsolar radiation data for central recessionalation [LBL-8371] 25 p0131  Measurement of circumsolar radiation: Status [LBL-8391] 25 p0133  WAHLIG, M.  Experimental test facility for evaluation of	A80-19048 ergy N80-11574 the N80-11544 erption fie A80-17869 -A1 -A80-12781 -term N80-13607 eiver N80-12647 s report N80-12982
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat pumps [ASME PAPER 79-WA/SOL-23]  VERHOFFF, J.  Environmental data for energy tec analysis. Volume 1: Summary [BCP/EV6119-1]  VERNEURB, F. E.  Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, F. E.  Modeling and experimental analysi generator [ASME PAPER 79-DET-9]  VERSCEDUB, K. A.  Neutronics in the toroidal belt-g screw pinch reactor  VEZIROGLU, T. N.  Pifth Ocean Thermal Energy Conver volume 2, sections 4-5 [CONF-780236-P2]	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311  s of a fluidic  25 p0041 A80-15705  eometry of a  25 p0081 A80-19657  sion Conference,  25 p0162 N80-14553  y powerful	WADDE, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICFS-TH-28] 25 p0111  WADDE, W. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WADGLI, P.  Laser fusion implications of resonance absorand associated electrostatic field pressured as and associated electrostatic field pressured as systems 25 p0057  WAGHA, A. S.  Solar absorption spectra of PbS-Al and PbSe systems 25 p0027  WAGNER, S.  Current U. S. petroleum situation and short supply/demand outlook [DOF/EIA-0184/5] 25 p0138  WAHIG, M.  Circumsolar radiation data for central recessional situation [LBL-8371] 25 p0131  Measurement of circumsolar radiation: Statu [LBL-8391] 25 p0133  WAHLIG, M.  Experimental test facility for evaluation of control strategies [LBL-8308] 25 p0126	A80-19048 ergy N80-11574 the N80-11544 erption fie A80-17869 -A1 -A80-12781 -term N80-13607 eiver N80-12647 s report N80-12982
ammonia-water solar refrigerato  VENKATESWARLU, U. Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P. A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOUPP, J. Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERNEULBB, P. E. Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, P. E. Modeling and experimental analysi generator [ASME PAPER 79-DET-9]  VERSCHOUR, K. A. Neutronics in the toroidal belt-g screw pinch reactor  VEZIROGLU, T. N. Pifth Ocean Thermal Energy Conver volume 2, sections 4-5 [CONF-780236-P2]  VIACHESLAVOV, L. N. Investigation of plasma heating b relativistic electron beams	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311 s of a fluidic  25 p0041 A80-15705  eometry of a  25 p0081 A80-19657  sion Conference,	WADB, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICFS-TM-28] 25 p0111  WADB, W. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WAGGLI, P.  Laser fusion implications of resonance absonand associated electrostatic field pressure 25 p0057  WAGH, A. S.  Solar absorption spectra of PbS-Al and PbSesystems 25 p0027  WAGHER, S.  Current U. S. petroleum situation and short supply/demand outlook [DOE/EIA-0184/5] 25 p0138  WAHIG, M.  Circumsolar radiation data for central recessional situation [LBL-8371] 25 p0131  Measurement of circumsolar radiation: Status [LBL-8371] 25 p0133  WAHLIG, M.  Experimental test facility for evaluation of control strategies [LBL-8308] 25 p0126	A80-19048 ergy N80-11574 the N80-11544 erption lee A80-12781 -term N80-13607 eiver N80-12647 s report N80-12982 ef solar
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOEFF, J. Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERNEULEM, F. E. Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, F. E. Modeling and experimental analysi generator [ASME PAPER 79-DET-9]  VERSCHUUR, K. A. Neutronics in the toroidal belt-g screw pinch reactor  VEZIROGLU, T. N. Pifth Ocean Thermal Energy Conver volume 2, sections 4-5 [CONF-780236-P2]  VIACHESLAVOV, L. N. Investigation of plasma heating b	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311 s of a fluidic  25 p0041 A80-15705  eometry of a  25 p0081 A80-19657  sion Conference,  25 p0162 N80-14553 y powerful  25 p0056 A80-17857	WADDE, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICFS-TM-28] 25 p0111  WADDE, W. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WAEGLI, P.  Laser fusion implications of resonance absorand associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured as systems  WAGHE, A. S.  Solar absorption spectra of PbS-Al and PbSe systems  25 p0027  WAGNEE, S.  Current U. S. petroleum situation and short supply/demand outlook [DOF/EIA-0184/5] 25 p0138  WAHIG, M.  Circumsolar radiation data for central recessional situation [LBL-8371] 25 p0131  Measurement of circumsolar radiation: Status [LBL-8371] 25 p0133  WAHLIG, M.  Experimental test facility for evaluation of control strategies [LBL-8308] 25 p0126  WAIBEL, R. T.  Development of combustion data to utilize 1 gases as industrial process fuels. Projection and states as a possible process fuels.	A80-19048  ergy  N80-11574  the  N80-11544  erption  re  A80-12781  -term  N80-12647  s report  N80-12982  f solar  N80-12586  ow Btu
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOEFF, J. Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERNEULEM, F. E. Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, F. E. Modeling and experimental analysi generator [ASME PAPER 79-DET-9]  VERSCHUUR, K. A. Neutronics in the toroidal belt-g screw pinch reactor  VEZIROGLU, T. N. Pifth Ocean Thermal Energy Conver volume 2, sections 4-5 [CONF-780236-P2]  VIACHESLAVOV, L. N. Investigation of plasma heating b relativistic electron beams  VIDONI, E. Wind energy conversion system wit stabiliser	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311 s of a fluidic  25 p0041 A80-15705  eometry of a  25 p0081 A80-19657  sion Conference,  25 p0162 N80-14553 y powerful  25 p0056 A80-17857	WADDE, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICFS-TM-28] 25 p0111  WADDE, W. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WAEGLI, P.  Laser fusion implications of resonance absorand associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured by p0057  WAGH, A. S.  Solar absorption spectra of PbS-Al and PbSe systems 25 p0027  WAGHER, S.  Current U. S. petroleum situation and short supply/demand outlook [DDF/EIA-0184/5] 25 p0138  WAHIG, M.  Circumsolar radiation data for central recessinulation [LBL-8371] 25 p0131  WAHIG, M.  Experimental test facility for evaluation of control strategies [LBL-8308] 25 p0126  WAIBEL, B. T.  Development of combustion data to utilize I gases as industrial process fuels. Projection of the popular ward-momentum burner	A80-19048  ergy  N80-11574  the  N80-11544  erption  IEE  A80-12781  -term  N80-12647  es report  N80-12982  f solar  N80-12586  ow Btu
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat pumps [ASME PAPER 79-WA/SOL-23]  VERHOFF, J. Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERNEURB, F. E. Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, F. E. Modeling and experimental analysi generator [ASME PAPER 79-DEI-9]  VERSCEUUR, K. A. Neutronics in the toroidal belt-g screw pinch reactor  VEZIROGLU, T. N. Pifth Ocean Thermal Energy Conver volume 2, sections 4-5 [CONF-780236-P2]  VIACHESLAVOV, L. N. Investigation of plasma heating b relativistic electron beams  VIDONI, E. Vind energy conversion system wit	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311 s of a fluidic  25 p0041 A80-15705  ecometry of a  25 p0081 A80-19657  sion Conference,  25 p0 162 N80-14553 y powerful  25 p0056 A80-17857 h electromagnetic  25 p0031 A80-13004	WADB, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICFS-TM-28] 25 p0111  WADB, W. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WAGGLI, P.  Laser fusion implications of resonance absonand associated electrostatic field pressure 25 p0057  WAGH, A. S.  Solar absorption spectra of PbS-Al and PbSesystems 25 p0027  WAGHER, S.  Current U. S. petroleum situation and short supply/demand outlook [DOE/EIA-0184/5] 25 p0138  WAHIG, M.  Circumsolar radiation data for central recessional situation [LBL-8371] 25 p0131  Measurement of circumsolar radiation: Status [LBL-8391] 25 p0133  WAHLIG, M.  Experimental test facility for evaluation of control strategies [LBL-8308] 25 p0126  WAIBBL, R. T.  Development of combustion data to utilize I gases as industrial process fuels. Projection of the potential process fuels. Projectial process fuels. Projection of the potential process fuels. Proj	A80-19048  ergy  N80-11574  the  N80-11544  erption  re  A80-12781  -term  N80-12647  s report  N80-12982  f solar  N80-12586  ow Btu
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat pumps [ASME PAPER 79-WA/SOL-23]  VERHOFF, J. Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERNEURB, F. E.  Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, F. E.  Modeling and experimental analysi generator [ASME PAPER 79-DET-9]  VERSCEBUR, K. A.  Neutronics in the toroidal belt-g screw pinch reactor  VEZIROGLU, T. N. Pifth Ocean Thermal Energy Conver volume 2, sections 4-5 [CONF-780236-P2]  VIACHESLAVOV, L. N. Investigation of plasma heating b relativistic electron beams  VIDONI, E.  Wind energy conversion system wit stabiliser	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311 s of a fluidic  25 p0041 A80-15705  eometry of a  25 p0081 A80-19657  sion Conference,  25 p0 162 N80-14553 y powerful  25 p0056 A80-17857 h electromagnetic	WADDE, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICFS-TM-28] 25 p0111  WADDE, W. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WAEGLI, P.  Laser fusion implications of resonance absorand associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured by p0057  WAGH, A. S.  Solar absorption spectra of PbS-Al and PbSe systems 25 p0027  WAGHER, S.  Current U. S. petroleum situation and short supply/demand outlook [DOF/EIA-0184/5] 25 p0138  WAHIG, M.  Circumsolar radiation data for central recessionalation [LBL-8371] 25 p0131  WAHIG, M.  Experimental test facility for evaluation of control strategies [LBL-8308] 25 p0126  WAIBEL, B. T.  Development of combustion data to utilize I gases as industrial process fuels. Projection forward-momentum burner [FE-2489-33] 25 p0093  WAITE, W. A.  Anton permselective membrane	A80-19048  ergy  N80-11574  the  N80-11544  erption  IEE  A80-12781  -term  N80-12647  Is report  N80-12982  f solar  N80-12586  ow Btu
ammonia-water solar refrigerato  VENKATESWARLU, U.  Programme and progress of DST spo photovoltaic work in India  VERCAEMERT, P.  A simplified procedure for perfor systems with heat rumps [ASME PAPER 79-WA/SOL-23]  VERHOEFF, J. Environmental data for energy tec analysis. Volume 1: Summary [HCP/EV6119-1]  VERNEULRM, F. E. Physical modelling of the electro of oil sand and other earth-typ materials  VERRIER, F. E. Modeling and experimental analysi generator [ASME PAPER 79-DET-9]  VERSCHUUR, K. A. Neutronics in the toroidal belt-g screw pinch reactor  VEZIROGLU, T. N. Pifth Ocean Thermal Energy Conver volume 2, sections 4-5 [CONF-780236-P2]  VIACHESLAVOV, L. N. Investigation of plasma heating b relativistic electron beams  VIDONI, E. Wind energy conversion system wit stabiliser  VINAYAGALINGAM, T. The pedal wind turbine	25 p0028 A80-12786  nsored solar  25 p0025 A80-12760  mance of solar  25 p0065 A80-18555  hnology policy  25 p0098 N80-10629  magnetic heating e and biological  25 p0020 A80-12311  s of a fluidic  25 p0041 A80-15705  eometry of a  25 p0081 A80-19657  sion Conference,  25 p0162 N80-14553  y powerful  25 p0056 A80-17857  h electromagnetic  25 p0031 A80-13004	WADDE, D. W.  Heat pump centered integrated community energy systems; System development [ANL-ICFS-TM-28] 25 p0111  WADDE, W. H.  Tertiary oil recovery processes research at University of Texas [BETC-0001-1] 25 p0108  WAEGLI, P.  Laser fusion implications of resonance absorand associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured and associated electrostatic field pressured by p0057  WAGH, A. S.  Solar absorption spectra of PbS-Al and PbSe systems 25 p0027  WAGHER, S.  Current U. S. petroleum situation and short supply/demand outlook [DOF/EIA-0184/5] 25 p0138  WAHIG, M.  Circumsolar radiation data for central recessionalation [LBL-8371] 25 p0131  WAHIG, M.  Experimental test facility for evaluation of control strategies [LBL-8308] 25 p0126  WAIBEL, B. T.  Development of combustion data to utilize I gases as industrial process fuels. Projection forward-momentum burner [FE-2489-33] 25 p0093  WAITE, W. A.  Anton permselective membrane	A80-19048  ergy  N80-11574  the  N80-11544  erption  IEE  A80-12781  -term  N80-12647  es report  N80-12982  f solar  N80-12586  ow Btu

PERSONAL AUTHOR INDEX WELLMAN, D. L.

WAKAHIYA, W.		Methodology for identifying mater	
Assessment of synfuel transportate [PNL-2768]	tion to year 2000 25 p0092 N80-10382	to implementation of solar ener	gy technologies 25 p0098 N80-10625
WAKATABI, M.	•	WAYER, M.	-
Effect of finite beta on drift-war particle confinement	we turbulence and	The promise and puzzle of electri	c vehicles 25 p0039 A80-15175
-	25 p0084 480-20158	WEAVER, H. T.	-
WAKERLRY, D. S.  The microbial production of metha	ne from household	Design and performance of silicon under concentrated sunlight	solar cells
wastes - Fixed-bed anaerobic di		[SAND-79-1165C] WEBB, R. L.	25 p0172 N80-15577
WALKER, D.	•	Energy conservation via heat tran	
Computer program for assessing the feasibility of solar energy for	single family	[COO-4649-4] WEBELER, R. W. E.	25 p0147 N80-13707
residences and light commercial [NASA-TM-78251]	25 p0 156 N80-14501	Are large concentration of atomic tritium-impregnated solid in H2	
WALKER, D. C. Pelletized wood /Woodex/ - Applic	ations and	WEBER, D.	25 p0072 A80-18728
potential		Electric power generation and LNG	
WALKER, W. R.	25 p0017 A80-11981	the aid of gas turbines within process	
Trans-seasonal storage of solar e Innovative research program sul		[AED-CONF-78-155-010] WEBSTER, B. T.	25 p0121 N80-12291
[COO-4546-3]	25 p0144 N80-13672	A vortex model of the Darrieus tu	
WALSH, W. J.  Energy storage systems for automo		analytical and experimental stu [ASME PAPER 79-WA/FE-6]	25 p0070 A80-18620
1978 study. 1: Overview and in [UCRL-52553-VOL-1]	25 p0 105 N80-10970	WEDLER, H. Testing and performance of the 30	kA ohmic beating
Advanced batteries for electric to at the future		system for ASDEX	25 p0078 A80-19585
[CONF-790484-1] Energy storage system for automol	25 p0159 N80-14531 pile propulsion,	WEH, H. Linear synchronous motor developm	ent for urkan and
1978 study. 2: Detailed repor		rapid transit systems	25 p0062 A80-18167
WALTER, D.	_	WEI, I. W.	-
Commercialization strategy report urban wastes		Wastewater treatment in coal conv [PB-297587/8]	ersion 25 p0104 N80-10700
[TID-28852-DRAFT] WALTON, H.	25 p0 158 N80-14521	WEI, J.  A single coal particle gasificati	on model
Residential sector energy forecase level for 1978-electricity, national sector is a sector energy forecase.		WEICHEL, H.	25 p0088 A80-20884
two fuel oil and propane [DOE/EIA-0102/50]	25 p0113 N80-11601	Solar electric generating system requirements	resource
WALZER, W.	•		25 p0005 A80-11341
Characterization of solid-waste of cogeneration systems	•	WEICHSBLGARTNER, H.  Investigations of isotope separat	ion effects of a
[LBL-7883] WANG, F. B.	25 p0141 N80-13648	Ti-fluidized bed	25 p0082 A80-19669
Preparation of superconducting co	oil through	WEINGART, J. M. Global aspects of sunlight as a m	ajor energy source
WANG, SA.	25 p0040 A80-15512	WEINSTEIN, B. W.	25 p0048 A80-17131
An experimental study of corrugate solar water heater	ted steel sheet	X-ray measurement of laser fusion least squares fitting	targets using
	25 p0029 A80-12822	-	25 p0060 A80-18110
WANG, ZD. An indirect ammonia-air fuel syst		WEINSTRIN, S. Architectural concerns in solar s	ystem design and
WANIG, M.	25 p0013 A80-11868	installation [SCLAR/0801-79-01]	25 p0129 N80-12607
Analysis of the California solar [LBL-7860-VOL-2]	resource, volume 2 25 p0127 N80-12589	WEIR, B. B. Environmental assessment report:	-
WARD, D. S.	-	Coal (SRC) systems	
Solar cooling performance in CSU [COO-2858-23]	25 p0143 N80-13668	[PB-300383/7] WRIS, P.	25 p0179 N80-15676
Realistic sizing of residential s cooling systems	solar heating and	Status of information for consume energy systems	rs of small wind
[C00-2858-14] WARD, J. C.	25 p0163 N80-14569	[SERĪ/TP-51-158] Weiss, i.	25 p0113 N80-11602
Solar cooling performance in CSU [COO-2858-23]	Solar House 3 25 p0143 N80-13668	The European economic community's concerning natural gas, coal an	
WARREN, J. L. Analysis of hydrogen in solids	•	energy	25 p0032 A80-13175
[DOE/ER-0026]	25.p0167 N80-15220	BEISSBEOD, B.	_
WARREN, H. Experimental test facility for excontrol strategies		Geothermal energy market study on coastal plain. Economic evalua direct use of moderate temperat	tion model for ure, up to 250 F,
[LBL-8308] WATANABE, T.	25 p0126 N80-12586	geothermal resources in the nor coastal plain	thern Atlantic
Photoelectrochemical hydrogen pro	oduction 25 p0052 A80-17580	[PB-298785/7] WELLER, S. W.	25 p0165 N80-14578
WATSON, D. B. Controllable d.c. power supply for	,	Catalysis of hydrogen transfer in system	a tetralin-coal
self-excited induction machines		WELLMAN, D. L.	25 p0019 A80-12246
WATTS, R. L.	-	Meteorological effects of oil ref	inery operations
Materials resource requirements a limitations in solar energy pro	oducts	in Los Angeles [PB-300720/0]	25 p0180 N80-15758
	25 p0018 A80-11990		

Boundary layer analysis of cold-blanket systems

25 p0058 A80-17877

```
WICK, G. S.
WELLS, W. L.
                                                                                         Salt power - Is Neptune's ole salt a tiger in the
    Piscal year 1978 experiences at TVA's Widows Creek unit 8 linestone scrubber
                                                                                            tank
       [ASHE PAPER 79-WA/APC-10]
                                                                                                                                        25 p0045 A80-16654
                                                   25 p0071 A80-18623
                                                                                     WICKSTROM, B.

170 MW pressurized fluidized bed combustion electric plant

25 p0014
    Phosphoric acid fuel-cell electrocatalysts from
       pyropolymer ceramic composites
                                                   25 p0012 A80-11861
                                                                                                                                        25 p0014 A80-11962
                                                                                     WIDEER, E.
                                                                                         Textured silicon - A selective absorber for solar
    Comparative study of solar optics for paraboloidal
                                                                                            thermal conversion
       concentrators
       [ASME PAPER 79-WA/SOL-8]
                                                   25 p0066 A80-18564
                                                                                                                                        25 p0034 A80-13980
VENZIER, S. A.

Cost-effective control systems for solar heating and cooling applications

25 no.101 N80-16
                                                                                     WIEDENBERT, C. J.
Studies of directly absorbing fluids for mid-temperature solar thermal applications
       [SAN-1592-1]
                                                   25 p0101 N80-10658
                                                                                            [MLM-2625-OP]
                                                                                                                                        25 p0160 N80-14540
                                                                                     WIEWIOROWSKA, K.
WERDEN, R. G.

Heat pump centered integrated community energy
systems; System development
[ANL/ICES-TM-26] 25 p0173 N80-
                                                                                         Legal and political problems of solar power stations in space
[IAF PAPEE 79-IISL-03] 25 p0047 i
                                                   25 p0173 N80-15589
                                                                                                                                        25 p0047 A80-17064
                                                                                     WIHL, M.
WERNER, A. S.
                                                                                         Phase 2 of the array automated assembly task for the low cost silicon solar array project [NASA-CE-162426] 25 p0110 N80-11565
    combustion systems. Volume 1: Gas- and oil-fired residential heating sources
       [PB-298494/6]
                                                   25 p0131 N80-12637
                                                                                      WILBORN, J.
                                                                                         Commercial solar augmented heat pump system
[EPRI-ER-1004] 25 p0160 N80-14537
WESSON, J. A.
Dependence of ideal MHD beta limits on current
                                                                                     WILCOCK, P. D.
A new high beta reversed field pinch machine
25 p0078 A80-19587
       density and pressure profiles
                                                   25 p0054 A80-17790
WESTBERG, H.
    Ambient air measurements of petroleum refinery
                                                                                      WILDE, D.
                                                                                         Development of integrated thermionic circuits for
       emissions
                                                   25 p0018 A80-11992
                                                                                            geothermal high-temperature applications
                                                                                            [LA-UB-79-723]
                                                                                                                                        25 p0112 N80-11592
WESTMORELAND, P. R.
Review of supporting research at Oak Ridge
                                                                                      WILBESKI, G.
       National Laboratory for underground coal
                                                                                          Nonequilibrium thermodynamics of fuel cells - Heat
       conversion
                                                                                            release mechanisms and voltage
                                                   25 p0136 N80-13295
                                                                                                                                        25 p0084 A80-20274
       CONF-790630-91
WETTERBARK, G.
                                                                                      WILKINS, D. B.
    An incongruent heat-of-fusion system - CaCl2-6H2O
- made congruent through modification of the
chemical composition of the system
                                                                                          Dynamic modeling of H2S clean-up processes
                                                                                                                                        25 p0088 A80-20885
                                                                                      WILKINS, R. W.
                                                                                          An overview of Controlled Thermonuclear Research
                                                   25 p0C29 A80-12823
                                                                                            Division control and data acquisition computer usage at the Los Alamos Scientific Laboratory

25 p0022 A80-12628
    Integral modeling of MHD channel boundary layers
[AIAA PAPER 80-0175] 25 p0064 A80-1
                                                   25 p0064 A80-18353
                                                                                      WILKINSON,
WHITAKER, A. P.
                                                                                         Crystallographic contributions to the energy problem [CONF-780867-1] 25 p0128 N80-12598
    Characterization of three types of silicon solar
cells for SEPS deep space missions. Volume 1:
Current-voltage characteristics of OCLI BSF/BSR
                                                                                            [CONF-780867-1]
                                                                                      WILL P. G.
       10 ohm-cm, and BSR 2 ohm-cm cells as a function
                                                                                          Recent advances in zinc-bromine batteries
                                                                                                                                        25 p0010 A80-11846
       of temperature and intensity
       [ NASA-TM-78253]
                                                   25 p0171 N80-15562
                                                                                      WILLARS. H. J.
WHITAKER, R. B.

Energy storage for solar air conditioning applications utilizing a form-stable, high density polyethylene pellet bed

[MLM-2598(OP)] 25 p0113 N6
                                                                                          The methanol-air fuel cell - A selective review of
                                                                                            methanol oxidation mechanisms at platinum electrodes in acid electrolytes
                                                                                                                                        25 p0042 A80-16146
                                                   25 p0113 N80-11603
                                                                                      WILLIAMS, A. H.
Heat and electricity from the sum using parabolic
WHITE, I. L.
    Energy from the West: Energy resource development
systems report. Volume 1: Introduction and
general social controls
                                                                                            dish collector systems
                                                                                                                                         25 p0037 A80-14706
                                                                                      WILLIAMS, J.
                                                                                          Climatic impact of alternative energy sources
     [PB-299177/6] 25 p0152 N80-14463
Energy from the West: Energy resource development
systems report. Volume 2: Coal
                                                                                          25 p0050 A80-17140
The impact of a conceptual solar thermal electric
       [PB-299178/4]
                                                                                            conversion plant on regional meteorological conditions - A numerical study
                                                   25 p0152 N80-14464
     Energy from the West: Energy resource development
       systems report. Volume 3: Oil shale [PB-299179/2] 25 p0152 N80-14465
                                                                                                                                        25 p0060 A80-18125
                                                                                          Energy and climate: A review with emphasis on
     Energy from the West: Energy resource development
                                                                                             global interactions
       systems report. Volume 4: Uranium
                                                                                                                                         25 p0131 N80-12677
     [PB-299180/0] 25 p0152 N80-14466
Energy from the West: Energy resource development
                                                                                      WILLIAMS, O. G.
                                                                                          Solar parabolic trough forming process [ALO-4158-1] 25 p
     systems report. Volume 5: 0il and natural gas [PB-299181/8]
Energy from the West: Energy resource development systems report. Volume 6: Geothermal
                                                                                                                                         25 p0116 N80-11626
                                                                                      WILLIAMS, T.
                                                                                      Environmental data for energy technology policy analysis. Volume 1: Summary
[BCP/EV6119-1] 25 p0098 N80-
WILLIAMS, T. S.
       [PB-299182/6]
                                                   25 p0152 N80-14468
                                                                                                                                         25 p0098 N80-10629
 WHITEEY, R. L.
A low level wind measurement technique for wind
                                                                                          Off-design performance analysis of MHD generator
        turbine generator siting
                                                                                            channels
                                                                                      [AIAA PAPER 80-0176] 25 p0064 AMILLIAMS, W. R.
Department of Energy fossil energy equipment
                                                   25 p0042 A80-16084
                                                                                                                                         25 p0064 A80-18354
 WICK, G. L.
Salinity gradient power - Utilizing vapor pressure
       differences
                                                                                             development programs
                                                   25 p0003 A80-10524
                                                                                             [CONF-790405-14]
                                                                                                                                         25 p0112 N80-11590
                                                                                      WILNER, B.
```

WILSON, D. C. WOLF, M. A.
Critique of the meteorological and air quality Energy conservation through recycling p0003 A80-10842 baseline monitoring program for the prototype oil shale leasebolds. Part A: Comments on the The uncertain costs of waste disposal and resource approach taken and recommendations for continuing program. Part B: Comments on the data acquisition and management 25 p0043 A80-16150 WILSON, D. L. Computer software to calculate and map geologic [ DOE/EV-70031/4-PT-A/B] 25 p0148 N80-13723 WOLFF, W. A.
OTEC thermal resource report for Caribbean Sea
Plant Ship 13-15 degrees N 75-80 degrees N
25 p0113 N80-11599 parameters required in estimating coal production costs [EPRI-EA-674] 25 p0095 N80-10584 WILSON, D. R.
Off-design performance analysis of MED generator OTEC thermal response report for Pacific plant ship, 5 to 10 deg N 90 to 95 deg N [BCP/T2898-01/3] 25 p0142 N80-13656 channels [AIAA PAPER 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MED generators on NO/x/ chemical kinetics
[AIAA PAPEE 80-0254] 25 p0077 A80-19 WOLPINGER, T. P. Environmental data for energy technology policy analysis. Volume 1: Summary 25 p0077 A80-19310 WILSON, J. R. [ HCP/EV6119-1] 25 p0098 N80-10629 Nonlinear modification of resonance-cone WOLOWSKI, E. trajectories Current German developments in coal liquefaction 25 p0006 A80-11347 technology WILSON, W. I. 25 p0015 A80-11965 The use of oil shale for SO2 emission control in FONG. D. atmospheric-pressure fluidized-bed coal combustors Study of corrosion and its control in aluminum solar collectors 25 p0064 A80-18505 [CCO-2934-7] 25 p0129 N80-12609 Status of development, energy and economics WONG, R. L. aspects of alternative technologies [CONF-790371-1] Nonlinear modification of resonance-cone 25 p0 145 N80-13689 trajectories WINELAND, D. L. Ohio exposition center solar home project

CDR-298541/41 25 p0164 N80-14577 25 p0006 A80-11347 WOO, T. G.
Lignite fuel and power-plant availability С. В. 25 p0004 A80-10944 Validation of computer models for predicting WOOD, D. C. radiation levels on tilted surfaces Annual review of energy. Volume 4 25 p0020 A80-12429 25 p0008 A80-11826 Energy meter for solar air systems 25 p0022 A80-12609 Modeling and experimental analysis of a fluidic RAFAD - Real-time Accurate Performance Analysis of generator Data [ASME PAPER 79-DET-9] 25 p0041 A80-15705 [ASME PAPEE 79-WA/SOL-1] 25 p0066 a80-18565
Preliminary analysis of a total solar heating system
[ASME PAPEE 79-WA/SOL-40] 25 p0069 a80-18583 WOOD, V. B. Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska Preliminary analysis of a total solar heating system
[COO-4546-4] . 25 p0101 M80-10653 [ NASA-CR-162534] 25 p0154 N80-14483 WINSTON, R. WOODALL, J. H.

The effect of fluorescent wavelength shifting on Cavity enhancement by controlled directional scattering solar cell spectral response 25 p0083 A80-19955 25 p0086 A80-20715 WIPP, S. L.
The 50kA flux pump for the superconducting transmission line test bed WOODEN, V. A. Characterization of three types of silicon solar cells for SEPS deep space missions. Volume 1: Current-voltage characteristics of OCLI BSP/BSB [LA-6953-MS] 25 p0094 N80-10443 WISE. D. L. 10 ohm-cm, and BSR 2 ohm-cm cells as a function of temperature and intensity Methane fermentation of aquatic biomass 25 p0043 A80-16148 [ NASA-TM-78253] 25 p0171 N80-15562 WOODLEY, N. H.
Solar energy perspectives for public power
[SEBI/TF-35-300] 25 p0140 Gas recovery from unconventional sources 25 p0014 A80-11958 25 p0140 N80-13635 WISNIEWSKI, G. R. WOODRUFF, G. L. Studies on the Ca-CaCrO4 and Li-Al-PeS2 systems Fuel production characteristics of fusion hybrid for thermal battery applications reactors 25 p0012 A80-11854 25 p0059 A80-17888 WITTENBERG, L. J. Studies of directly absorbing fluids for Overview of flywheel energy storage component mid-temperature solar thermal applications [MLM-2625-OP] 25 p0160 N development [SAND-78-1999C] [MLM-2625-OP] 25 p0160 M80-14540 Construction and initial operation of the 25 p0176 N80-15623 WOODSHALL, W. H., JR.
Thermal energy utilization in the Mississippi Miamisburg salt-gradient solar pond [MLM-2626-0P] 25 p0161 N80-14: Evaluation of fuel resources and requirements for the magnetic fusion energy program County Community College Photovoltaic Project [ASME PAPER 79-WA/SOL-29] 25 p0068 A80-25 p0161 N80-14541 25 p0068 A80-18575 WORKHOVEN, R. M. [MLM-2419] 25 p0164 N80-14570 Concentrating solar collector test results Collector Module Test Facility (CMTF) WITTER, A. Health and environmental effects of coal gasification and liquefaction technologies: A workshop summary and panel reports [SAND-78-0977] 25 p0111 N80-11580 WORKHOVEN, V. B. Performance testing of the General Electric Engineering Prototype Collector [SAND-79-0514] 25 p0141 [PB-297618/1] 25 p0 104 N80-10701 WORLGEBUTH, J. Silicon concentrator solar cell manufacturing 25 p0141 N80-13645 W. C. development A microeconomic approach to passive solar design -Performance, cost, optimal sizing and comfort [SAND-79-7021] 25 p0 146 N80-13697 analysis

25 p0021 A80-12433

25 p0060 A80-18128

Sensitivity of direct gain space heating

performance to fundamental parameter variations

		•	
WREDE, H.	-: 11	100, H. I.	
Unconventional circuits for stati transformers	c Voltage	Silicon solar cell process develop fabrication and analysis, phase	
[BMFT-FB-T-78-26]	25 p0107 N80-11368	[ NASA-CR-162427 ]	25 p0109 N80-11561
WRIGHT, J. D. SERAPH implementation plans		Assessment of present state-of-the technology of large diameter in	
[SERI/RR-34-152]	25 p0172 N80-15570	sheet material	25 =0.151 ×00 40.772
WRIGHTON, M. S. Photoelectrochemical conversion o	f optical energy	[NASA-CR-162535] YORK, W. L.	25 p0151 N80-14273
to electricity and fuels	25 p0123 N80-12556	<pre>Blectric utility solar energy act:    [EPRI-EB-966-SR]</pre>	ivities, 1978 25 p0162 N80-14560
[AD-A072861] WRIGLEY, C.	23 po 123 800-12330	YOSHIKAWA, M.	25 po 102 1100-14500
Silicon concentrator solar cell m development	anufacturing	JT-60 project	25 p0082 A80-19709
[SAND-79-7021]	25 p0146 N80-13697	YOUNGSDAHL, C. A.	
WO, S. T. Experimental and numerical studie	s of liquid	Long-term erosion monitoring of me by ultrasonic pulse-echo technic	
storage tank thermal stratifica		[CONF-790480-1]	25 p0167 N80-15259
energy syséem [COO-4479-2]	25 p0101 N80-10655	No. GY. Magnetic field design for a large	tokamak
WYHAH, C.	<u>-</u>		25 p0046 A80-16760
Thermal energy storage for solar overview	applications: An	YU, H. Y. Theory of cavitons in laser-irrad:	iated plasmas
[SERI/TF-34-089]	25 p0161 N80-14546	THE A C	25 p0057 A80-17872
WYNNE, P. E. Research and development of an ad	vanced process	YUE, A. S. A review of in situ composites for	r nonstructural
for conversion of coal to synth	etic gasoline and	applications	25 50002 390-10305
other distillate motor fuels [FE-1800-33]	25 p0135 N80-13287		25 p0002 A80-10285
Research and development of an ad for conversion of coal to synth		Z	
other distillate motor fuels		ZABRANSKY, Z.	
[FE-1800-30]	25 p0135 N80-13291	Plastic bonded electrodes for nicl accumulators. I - Cadmium electr	
X			25 p0043 A80-16147
XUAN, P. T.		ZAIAVLIN, V. R. Analysis of the optical character:	istics of silicon
Energy storage in organic photois	omers	photoelectric converters with b	
Photosensitization mechanisms for	25 p0072 A80-18747 energy storing	sensitivity	25 p0044 A80-16628
isomerizations		ZAITSEVA, A. K.	-
[AD-A074968]	25 pJ156 N80-14502	Photoconverter with bilateral sens	25 p0044 A80-16625
V		ZAJIC, J. E.	
			m ronlonichahlo
YADAV, K. S.		Microbial hydrogen production from resources	m replenishable
Review of the work done at C.E.E.		Microbial hydrogen production from resources	m replenishable 25 p0032 A80-13197
	ilicon solar light	Microbial hydrogen production from	25 p0032 180-13197
Review of the work done at C.E.E. development of single crystal s cells for use with concentrated	ilicon solar	Microbial hydrogen production from resources  2AKS, H. B. High-voltage multijunction solar	25 p0032 A80-13197
Review of the work done at C.E.E. development of single crystal s cells for use with concentrated  YAPPEE, P. Baltimore applications project	ilicon solar light 25 p0027 A80-12777	Microbial hydrogen production from resources  2MKS, H. B.	25 p0032 A80-13197 cell 25 p0035 A80-14593 acterization
Review of the work done at C.E.E. development of single crystal s cells for use with concentrated YAFFEE, P.	ilicon solar light	Microbial hydrogen production from resources  ZAKS, M. B. Bigh-voltage multijunction solar of the solar cell spectral response characteristics.	25 p0032 A80-13197 cell 25 p0035 A80-14593
Review of the work done at C.E.E. development of single crystal s cells for use with concentrated YAFFEE, P. Baltimore applications project [NASA-TH-80577]	ilicon solar light 25 p0027 A80-12777 25 p0133 N80-12957	Microbial hydrogen production from resources  ZAKS, M. B.  High-voltage multijunction solar of the solar cell spectral response characteristics.  ZAMPELLI, R. M.  Determination of the optimal sola	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685
Review of the work done at C.E.E. development of single crystal s cells for use with concentrated YAPFEE, P.  Baltimore applications project [NASA-TH-80577] YAHAGUCHI, H.	ilicon solar light 25 p0027 A80-12777 25 p0133 N80-12957	Microbial hydrogen production from resources  ZAKS, M. B.  High-voltage multijunction solar of the solar cell spectral response characteristics. B. H.  ZAMPELLI, B. H.	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685
Review of the work done at C.E.E. development of single crystal scells for use with concentrated VAFFEE, P. Baltimore applications project [NASA-TH-80577] VAMAGUCHI, M. Solar energy storage by metal hydrony. T. Minimum ignition energies and que	ilicon solar light 25 p0027 A80-12777 25 p0133 N80-12957 ride 25 p0053 A80-17582	Microbial hydrogen production from resources  ZAKS, M. B. High-voltage multijunction solar of the solar cell spectral response characteristics.  ZAMPELLI, B. M. Determination of the optimal sola decision criterion  ZATELEPIN, V. N.	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437
Review of the work done at C.E.E. development of single crystal s cells for use with concentrated YAFFEE, P. Baltimore applications project [NASA-TH-80577] YAMAGUCHI, H. Solar energy storage by metal hydrogen yamage of the storage by metal hydrogen yamage yamag	ilicon solar light 25 p0027 A80-12777 25 p0133 N80-12957 ride 25 p0053 A80-17582	Microbial hydrogen production from resources  ZAKS, M. B.  High-voltage multijunction solar of the solar cell spectral response characteristics. B. M.  Determination of the optimal sola decision criterion	25 p0032 A80-13197 ccell 25 p0035 A80-14593 acterization 25 p0037 A80-14685 r investment 25 p0021 A80-12437 high-power MHD
Review of the work done at C.E.E. development of single crystal scells for use with concentrated TAPPEE, P. Baltimore applications project [NASA-TH-80577] YAMAGUCHI, M. Solar energy storage by metal hydrometal solar energy storage by metal hy	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  nching distances 25 p0004 A80-11331	Microbial hydrogen production from resources  2AKS, M. B.  High-voltage multijunction solar of the solar cell spectral response characteristics. B. M.  Determination of the optimal solar decision criterion  2ATELEPIN, V. N.  Heat transfer in the channel of a generator	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437
Review of the work done at C.E.E. development of single crystal s cells for use with concentrated  YAFFEE, P. Baltimore applications project [NASA-TH-80577]  YAMAGUCHI, H. Solar energy storage by metal hyd  YANO, T. Minimum ignition energies and que of methanol blends  YAO, L. S. Analysis of convective heat loss of solar power plants	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  nching distances 25 p0004 A80-11331  from the receiver	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar cell spectral response characteristics. B. M.  Determination of the optimal solar decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MHD 25 p0035 A80-14516  battery
Review of the work done at C.E.E. development of single crystal scells for use with concentrated tables.  YAPPER, P. Baltimore applications project [NASA-TH-80577]  YAMAGUCHI, M. Solar energy storage by metal hydromaphic storage by metal hydromaphi	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  nching distances 25 p0004 A80-11331	Microbial hydrogen production from resources  ZAKS, M. B.  High-voltage multijunction solar of the solar cell spectral response characteristics. B. M.  Determination of the optimal sola decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MHD 25 p0035 A80-14516
Review of the work done at C.E.E. development of single crystal scells for use with concentrated value of the concentrated	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  maching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar cell spectral response characteristics. B. B.  Determination of the optimal solar decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEIMETZ, K. A.  Growing energy: Land for biomass	25 p0032 A80-13197 cell 25 p0035 A80-14593 acterization 25 p0037 A80-14685 r investment 25 p0021 A80-12437 high-power MHD 25 p0035 A80-14516 battery 25 p0011 A80-11849 farms
Review of the work done at C.E.E. development of single crystal s cells for use with concentrated TAFFEE, P. Baltimore applications project [NASA-TM-80577] YAMAGUCHI, M. Solar energy storage by metal hyd TANO, T. Minimum ignition energies and que of methanol blends  YAO, L. S. Analysis of convective heat loss of solar power plants [ASME PAPFER 79-WA/HT-36] YARZE, J. C.	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  maching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582	Microbial hydrogen production from resources  ZAKS, M. B.  High-voltage multijunction solar of the solar cell spectral response characteristics. B. M.  Determination of the optimal solar decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEIMETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MHD 25 p0035 A80-14516  battery 25 p0011 A80-11849
Review of the work done at C.E.E. development of single crystal scells for use with concentrated values of some state of single crystal scells for use with concentrated values. The solution of the solution of solution sproject [NASA-TH-80577]  YAMAGUCHI, M.  Solar energy storage by metal hydromatical solution of metal hydromatical solution of metal hydromatical solution of methanol blends  YAO, L. S.  Analysis of convective heat loss of solar power plants [ASME PAPIR 79-WA/HT-36]  YARZE, J. C.  Economics of Pullman Kellogg's margon system  YASUI, R. K.	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  nching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961	Microbial hydrogen production from resources  ZAKS, H. B.  Bigh-voltage multijunction solar of the solar cell spectral response characteristics. B. M.  Determination of the optimal solar decision criterion  ZATELEPIN, W. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEIMETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. B.  The erosion/corrosion of small su	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MHD 25 p0035 A80-14516  tattery 25 p0011 A80-11849  farms 25 p0094 N80-10400  peralloy turtine
Review of the work done at C.E.E. development of single crystal s cells for use with concentrated the state of single crystal sells for use with concentrated the state of the	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  nching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar cell spectral response characteristics. The solar cell spectral response characteristics of the optimal solar decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEIMETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. B.	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MHD 25 p0035 A80-14516  tattery 25 p0011 A80-11849  farms 25 p0094 N80-10400  peralloy turtine
Review of the work done at C.E.E. development of single crystal scells for use with concentrated values of some series of some	ilion solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  nching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961  strip 25 p0153 N80-14474	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar cell spectral response characteristics. B. M.  Determination of the optimal solar decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEIMBTZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. B.  The erosion/corrosion of small surotors operating in the effluen combustor	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MHD 25 p0035 A80-14516  tattery 25 p0011 A80-11849  farms 25 p0094 N80-10400  peralloy turtine
Review of the work done at C.E.E. development of single crystal s cells for use with concentrated the concentrated of the conc	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  mching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961  strip 25 p0153 N80-14474  for 1980-1985	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar cell spectral response charts.  ZAMPELLI, B. M.  Determination of the optimal solat decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEIMETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. B.  The erosion/corrosion of small surotors operating in the effluen combustor  ZHELEZNIAK, M. B.  Heat transfer in the channel of a	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MHD 25 p0035 A80-14516  Lattery 25 p0031 A80-11849  farms 25 p0094 N80-10400  peralloy turbine t of a PPB coal  25 p0001 A80-10043
Review of the work done at C.E.E. development of single crystal scells for use with concentrated to the concentrated of the co	ilion solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  nching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961  strip 25 p0153 N80-14474	Microbial hydrogen production from resources  ZAKS, M. B.  High-voltage multijunction solar of the solar cell spectral response characteristics. B. M.  Determination of the optimal solate decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEIMETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. B.  The erosion/corrosion of small surotors operating in the effluen combustor  ZHELEZHIAK, M. B.	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MHD 25 p0035 A80-14516  tattery 25 p0011 A80-11849  farms 25 p0094 N80-10400  peralloy turbine t of a PPB coal 25 p0001 A80-10043  high-power MHD
Review of the work done at C.E.E. development of single crystal s cells for use with concentrated the concentrated of the conc	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  mching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961  strip 25 p0153 N80-14474  for 1980-1985 25 p0155 N80-14492	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar cell spectral response charts.  ZALRWSKI, E. F.  Solar cell spectral response charts.  ZAMPELLI, R. M.  Determination of the optimal solat decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEIMETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. R.  The erosion/corrosion of small surotors operating in the effluen combustor  ZHELEZNIAK, M. B.  Heat transfer in the channel of a generator  ZIEGLEB, A.	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MED 25 p0035 A80-14516  tattery 25 p0031 A80-11849  farms 25 p0094 N80-10400  peralloy turbine t of a PFB coal 25 p0001 A80-10043  high-power MED 25 p0001 A80-10043
Review of the work done at C.E.E. development of single crystal scells for use with concentrated to the concentrated of the co	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  mching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961  strip 25 p0153 N80-14474  for 1980-1985 25 p0155 N80-14492	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar cell spectral response characteristics. B. B.  Determination of the optimal solar decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEINETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. B.  The erosion/corrosion of small surotors operating in the effluen combustor  ZHELEZNIAK, M. B.  Heat transfer in the channel of a generator  ZIEGLER, A.  Technical possibilities and econo	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MED 25 p0035 A80-14516  tattery 25 p0031 A80-11849  farms 25 p0094 N80-10400  peralloy turbine t of a PFB coal 25 p0001 A80-10043  high-power MED 25 p0001 A80-10043
Review of the work done at C.E.E. development of single crystal s cells for use with concentrated to the concentrated of the c	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  mching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961  strip 25 p0153 N80-14474  for 1980-1985 25 p0155 N80-14492	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar voltage multijunction solar of the solar cell spectral response charts.  ZAMPELLI, E. M.  Determination of the optimal solat decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEIMETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. B.  The erosion/corrosion of small surotors operating in the effluen combustor  ZHELEZNIAK, M. B.  Heat transfer in the channel of a generator  ZIEGLEB, A.  Technical possibilities and econo coal refining	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MED 25 p0035 A80-14516  tattery 25 p0031 A80-11849  farms 25 p0094 N80-10400  peralloy turbine t of a PFB coal 25 p0001 A80-10043  high-power MED 25 p0001 A80-10043
Review of the work done at C.E.E. development of single crystal scells for use with concentrated value of single crystal scells for use with concentrated value of use with concentrated value of machine applications project [NASA-TH-80577]  YAMAGUCHI, M.  Solar energy storage by metal hydromore of methanol blends  YANO, T.  Minimum ignition energies and que of methanol blends  YAO, L. S.  Analysis of convective heat loss of solar power plants [ASME PAPPER 79-WA/HT-36]  YARZE, J. C.  Economics of Pullman Kellogg's margor power plants [NASA-CASE-NPO-13652-3]  YANS, C.  Silicon materials outlook study for calendar years [NASA-CR-162541]  YIH, G. K.  A comprehensive model for photowor at metal electrodes in contact	ilion solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  mching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961  strip 25 p0153 N80-14474  for 1980-1985 25 p0155 N80-14492  pltage generation with solutions of 25 p0004 A80-10879	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar cell spectral response characteristics. B. B.  Determination of the optimal solar decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEINETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. B.  The erosion/corrosion of small surotors operating in the effluen combustor  ZHELEZNIAK, M. B.  Heat transfer in the channel of a generator  ZIEGLER, A.  Technical possibilities and econo	25 p0032 A80-13197 cell 25 p0035 A80-14593 acterization 25 p0037 A80-14685 r investment 25 p0021 A80-12437 high-power MHD 25 p0035 A80-14516 tattery 25 p0011 A80-11849 farms 25 p0094 N80-10400 peralloy turbine t of a PPB coal 25 p0001 A80-10043 high-power MHD 25 p0035 A80-14516 mic prospects for 25 p0043 A80-16175
Review of the work done at C.E.E. development of single crystal scells for use with concentrated value of single crystal scells for use with concentrated value of use with concentrated value of methanology storage by metal hydromaps of methanol blends  YANO, T.  Minimum ignition energies and que of methanol blends  YAO, L. S.  Analysis of convective heat loss of solar power plants [ASME PAPFR 79-WA/HT-36]  YARZE, J. C.  Economics of Pullman Kellogg's margory of system  YASUI, R. K.  Method for forming a solar array [NASA-CASE-NPO-13652-3]  YAWS, C.  Silicon materials outlook study for calendar years [NASA-CR-162541]  YIH, G. K.  A comprehensive model for photovor at metal electrodes in contact fluorescent dyes  YOKBLI, M. D.  Role of the government in the devenergy	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  mching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961  strip 25 p0153 N80-14474  for 1980-1985 25 p0155 N80-14492  cltage generation with solutions of 25 p0004 A80-10879  relopment of solar	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar cell spectral response charts.  ZALRUSKI, E. F.  Solar cell spectral response charts.  ZAMPELLI, R. M.  Determination of the optimal solat decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEIMETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. R.  The erosion/corrosion of small surotors operating in the effluen combustor  ZHELEZNIAK, M. B.  Heat transfer in the channel of a generator  ZIEGLER, A.  Technical possibilities and econo coal-fired Northeastern U.S. A - Overview	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MHD 25 p0035 A80-14516  tattery 25 p0031 A80-11849  farms 25 p0094 N80-10400  peralloy turbine t of a PPB coal 25 p0001 A80-10043  high-power MHD 25 p0035 A80-14516  mic prospects for 25 p0043 A80-16175  combustion in and sulfur
Review of the work done at C.E.E. development of single crystal scells for use with concentrated cells for use with concentrated for use with concentrated for use with concentrated cells for use with concentrated for use with concentrated for use with concentrated for use of mass of solar energy storage by metal hydromaps of methanol blends  YAO, T.  Analysis of convective heat loss of solar power plants [ASME PAPIR 79-WA/HT-36]  YARZE, J. C. Economics of Pullman Kellogg's marked for system  YASUI, R. K. Method for forming a solar array [NASA-CASE-NPO-13652-3]  YAWS, C.  Silicon materials outlook study for calendar years [NASA-CR-162541]  YIH, G. K. A comprehensive model for photovo at metal electrodes in contact fluorescent dyes  YOKELL, H. D. Role of the government in the deve	ilion solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  mching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961  strip 25 p0153 N80-14474  for 1980-1985 25 p0155 N80-14492  pltage generation with solutions of 25 p0004 A80-10879	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar cell spectral response characteristics. B. M.  Determination of the optimal solate decision criterion  ZATELEPIN, W. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEIMETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. B.  The erosion/corrosion of small surotors operating in the effluen combustor  ZHELEZNIAK, M. B.  Heat transfer in the channel of a generator  ZIEGLER, A.  Technical possibilities and econo coal refining  ZIEGLER, B. N.:  Control technology for coal-fired	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MHD 25 p0035 A80-14516  tattery 25 p0031 A80-11849  farms 25 p0094 N80-10400  peralloy turbine t of a PPB coal 25 p0001 A80-10043  high-power MHD 25 p0035 A80-14516  mic prospects for 25 p0043 A80-16175  combustion in and sulfur
Review of the work done at C.E.E. development of single crystal scells for use with concentrated value of the concentrated of	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  nching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961  strip 25 p0153 N80-14474  for 1980-1985 25 p0155 N80-14492  cltage generation with solutions of 25 p0004 A80-10879  relopment of solar 25 p0178 N80-15639	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar cell spectral response charts.  ZALRWSKI, E. F.  Solar cell spectral response charts.  ZAMPELLI, R. M.  Determination of the optimal solat decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEIMETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. R.  The erosion/corrosion of small surotors operating in the effluen combustor  ZHELEZNIAK, M. B.  Heat transfer in the channel of a generator  ZIEGLER, A.  Technical possibilities and econo coal-fired Northeastern U.S. A - Overview emissions control. B - Particul combined systems	25 p0032 A80-13197  cell 25 p0035 A80-14593  acterization 25 p0037 A80-14685  r investment 25 p0021 A80-12437  high-power MHD 25 p0035 A80-14516  tattery 25 p0031 A80-11849  farms 25 p0094 N80-10400  peralloy turbine t of a PPB coal 25 p0001 A80-10043  high-power MHD 25 p0035 A80-14516  mic prospects for 25 p0043 A80-16175  combustion in and sulfur
Review of the work done at C.E.E. development of single crystal scells for use with concentrated cells for use with concentrated to the cells for use the cells for the cells for use the cells for	ilicon solar light 25 p0027 A80-12777  25 p0133 N80-12957  ride 25 p0053 A80-17582  nching distances 25 p0004 A80-11331  from the receiver 25 p0068 A80-18582  gnesium promoted 25 p0014 A80-11961  strip 25 p0153 N80-14474  for 1980-1985 25 p0155 N80-14492  cltage generation with solutions of 25 p0004 A80-10879  relopment of solar 25 p0178 N80-15639	Microbial hydrogen production from resources  ZAKS, M. B.  Bigh-voltage multijunction solar of the solar cell spectral response charters.  ZALEWSKI, E. F.  Solar cell spectral response charters.  ZAMPELLI, R. M.  Determination of the optimal solate decision criterion  ZATELEPIN, V. N.  Heat transfer in the channel of a generator  ZECEVIC, S.  Neutral electrolyte aluminium-air  ZEINETZ, K. A.  Growing energy: Land for biomass [PB-296650/5]  ZELLARS, G. B.  The erosion/corrosion of small surotors operating in the effluen combustor  ZHELEZNIAK, M. B.  Heat transfer in the channel of a generator  ZIEGLER, A.  Technical possibilities and econo coal refining  ZIEGLER, E. N.  Control technology for coal-fired Northeastern U.S. A - Overview emissions control. B - Particul	25 p0032 A80-13197 cell 25 p0035 A80-14593 acterization 25 p0037 A80-14685 r investment 25 p0021 A80-12437 high-power MHD 25 p0035 A80-14516 tattery 25 p0011 A80-11849 farms 25 p0094 N80-10400 peralloy turbine t of a PFB coal 25 p0001 A80-10043 high-power MHD 25 p0035 A80-14516 mic prospects for 25 p0043 A80-16175 combustion in and sulfur ates, NOX and

PERSONAL AUTHOR INDEX ZRELOV, V. B.

ZIMMERMAN, D. K. Linear concentration solar collector in an air supported enclosure. Preliminary design study [SAND-78-7022] 25 p0141 N80-13644 ZIMBRRAN, P. W.

Naturally occuring carbon dioxide sources in the
United States. A geologic appraisal and
economic sensitivity study of drilling and producing carbon dioxide for use in enhanced oil recovery [PE-2025-38] 25 p0130 N80-12624 ZIMBERHAN, J. B.
Coal-shale interface detection system
[NASA-CASE-MFS-23720-2] 25 p0152 N80-14423 ZIMBERMAN, W. P.

A conceptual design study on the application of liquid metal heat transfer technology to the solar thermal power plant
[NASA-CB-162544]

25 p0154 N80-25 p0154 N80-14484 ZOCHER, R. W. General-purpose heat source development. Phase 1: Design requirements [LA-7385-SR] 25 p0114 N80-11608 ZOLLARS, G. F. Hydrogen as a fuel. Citations from the international aerospace abstracts data base [NTIS/PS-79/0771/0] 25 p0094 N80-10397 Hydrogen production. Citations from the international aerospace abstracts data base
[NTIS/PS-79/0773/6] 25 p0094 N80-10401
Hydrogen storage as a hydride. Citations from the international aerospace abstracts data base [NTIS/PS-79/0772/8] 25 p0094 N80-10402 Waste utilization as an energy source. Citations from the International Aerospace Abstracts Data [NTIS/PS-79/0765/2] 25 p0102 N80-10667 Aircraft fuel. Citations from the International Aircraft fuel. Citations from the Internationa.
Aerospace Abstracts Data Base
[NTIS/PS-79/0764/5] 25 p0102 N8020TOV, A. V.
Some problems with variable operation of an MHD 25 p0102 N80-10668 generator 25 p0035 A80-14530 ZRELOV, V. N.
An engine fuel chemistry solution to the problem of jet fuel supplies

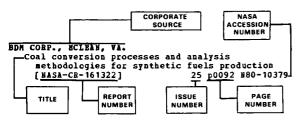
25 p0001 A80-10199

## **CORPORATE SOURCE INDEX**

ENERGY / A Continuing Bibliography (Issue 25)

**APRIL 1980** 

## Typical Corporate Source Index Listing



The title of the document is used to provide a brief description of the subject matter. The issue, page number and NASA or AIAA accession number are included in each entry to assist the user in locating the abstract in the abstract section of an individual supplement of Energy. If applicable, a report number is also included as an aid in identifying the document.

```
ACRES AMERICAN, INC., BUFFALO, N. Y.
      Peasibility of compressed air energy storage as
         a peak shaving technique in California, Volume 2 [SAN-1331-T1] 25 p0174 N80-15596
ACUREX CORP., MOUNTAIN VIEW, CALIF.
Technical assessment of thermal DeNox process
[PB-297947/4] 25 p0117 N80-11656
Pilot scale evaluation of Nox combustion control
         for pulverized coal, phase 2
[PB-299325/1] 25 p0180 N80-1 ADDIS TRANSLATIONS INTERNATIONAL, PORTOLA VALLEY,
                                                               25 p0180 N80-15687
 CALIP.
Conversion of radiant energy into chemical energy
[UCRL-TRANS-11427] 25 p0114 N80-11609
ADVISORY GROUP FOR AEROSPACE RESEARCH AND
 DEVELOPMENT, NEUILLY-SUR-SEINE (FRANCE) .
Fluid dynamic aspects of wind energy conversion
[AGARD-AG-243] 25 p0103 N80-10683
AEG-TELEPUNKEN, BERLIN (WEST GERMANY).
      Unconventional circuits for static voltage
         transformers
[BMFT-FB-T-78-26]
                                                                25 p0107 N80-11368
 ABROJET ENERGY CONSERVATION CO., SACRAMENTO, CALIF.
      Multi-use geothermal energy system with augmentation for enhanced utilization.
Non-electric application of geothermal energy
          in Susanville, California [DOE/ET-248447/1]
                                                                25 p0142 N80-13660
AEROSPACE CORP., EL SEGUNDO, CALIF.

The 10 MW solar thermal pilot plant dynamic simulation. Volume 1: Computer program
          description
      [ATR-78(7747)-1-VOL-1] 25 p0162 M80-14550
The 10 MW solar thermal pilot plant dynamic
simulation. Volume 2: Computer program
source listing
 source listing
[ATB-78 (7747)-2-VOL-2] 25 p01
AIR PORCE ACADEMY, COLO.
The USAF Academy flywheel-electric car
                                                                25 p0162 N80-14551
          preliminary design report
                                                                25 p0123 N80-12553
 [AD-A071242] 25 p0123 N80-125
AIR POLLUTION TECHNOLOGY, INC., SAN DIEGO, CALIF.
Effects of conditioning agents on emissions from
```

coal-fired boilers: Test report no. 1

COAl-TIFE DOLLARS (PB-299191/7) 25 p0165 NEU-14450 Ffects of conditioning agents on emissions from coal-fired boilers: Test report no. 2 25 p0165 NEO-14591

```
AIR PRODUCTS AND CHEMICALS, INC., ALLENTOWN, PA.
    Demonstration of a nitrogen based carburizing
       atmosphere: Energy consumption of the endothermic generator
                                                     25 p0173 N80-15591
       [CONS/5058-T1]
ALABAMA UNIV., HUNTSVILLE.

Experimental and numerical studies of liquid storage tank thermal stratification for a
       solar energy system
                                                     25 p0101 N80-10655
       [COO-4479-2]
    A survey of photovoltaic systems [NASA-CR-150696]
                                                     25 p0171 N80-15563
ALABAMA UNIV., UNIVERSITY.
    Heat pump centered integrated community energy
       systems: Systems development
[ANL/ICES-TH-30]
                                                     25 p0173 N80-15588
ALLERTON PRESS, INC., NEW YORK, N. Y.
Study of heat-pipe heat exchanger in the small
gas turbine engine system
                                                     25 p0091 N80-10022
     Selection of optimal parameters of heat-pipe heat exchanger for a gas turbine engine
                                                      25 p0091 N80-10068
     Dynamics of diesel fuel combustion in turbulent
                                                      25 p0091 N80-10074
AMERICAN UNIV., WASHINGTON, D. C.
On the properties of a fuel cell electrolyte
[AD-A072864] 25 p0123 N80
AMES LAB., IOWA.
                                                      25 p0123 N80-12554
     Operational experience with drain-down solar
       systems
     [IS-M-166] 25 p0125 N80
Photothermal conversion surface measurements
                                                     25 p0125 N80-12576
        using photoacoustic and photothermal
       spectroscopies
[IS-M-202]
    [IS-M-202] 25 p0129 N80-12011

Possil energy program. 1. Mining research and development: Coal preparation and analysis [IS-4655] 25 p0145 N80-13679

Fossil energy program, 1. Mining research and development: Coal preparation and analysis [IS-4703] 25 p0147 N80-13702
                                                      25 p0129 N80-12611
AMOCO OIL CO., NAPERVILLE, ILL.
Catalyst development for coal liquefaction
                                                      25 p0136 N80-13292
       [EPRI-AF-1084]
 APPLIED PHYSICS LAB., JOHNS HOPKINS UNIV., LAUREL,
MD.
     Geothermal energy market study on the Atlantic coastal plain. Economic evaluation model for
        coastal plain. Economic evaluation model for direct use of moderate temperature, up to 250 F, geothermal resources in the northern
        Atlantic coastal plain
        [PB-298785/7]
                                                      25 p0165 N80-14578
     Energy program at the Johns Hopkins University
Applied Physics Laboratory
[PB-310245/7] 25 p0179 N80-19
                                                      25 p0179 N80-15648
ARGONNE NATIONAL LAB., ILL.
Materials testing for central receiver
solar-thermal power systems
[DOE/TIC-10103]
25 p00
                                                      25 p0096 N80-10606
     Power supply requirements for a tokamak fusion
        reactor
        [ANL/PPP/TM-119]
                                                      25 p0104 N80-10918
     Heat pump centered integrated community energy
     systems: System development
[ANL-ICES-TM-28] 25 p0111 N80-
Transfer of energy conservation technology to
                                                      25 p0111 N80-11574
        industry. A preliminary survey of existing
        mechanisms
        [ANL/EES-TM-28]
                                                      25 p0111 N80-11576
```

•	
Implementing energy conservation strategies in	Lithium/iron sulfide batteries for electric
energy materials transport: U. S. Department	vehicles
of Energy and other government agency	[CONF-781006-2] 25 p0175 N80-15611
policy-making decisions	Development of Li-Al/PeS cells with LiCl-rich
[ANL/EES-TM-32] 25 p0111 N80-11577 DOE heat pump centered integrated community	electrolyte [CONF-7810135-2] 25 p0176 N80-15614
energy systems project	Turbomachinery options for an underground pumped
[CONF-790362-1] 25 p0112 N80-11586	hydroelectric storage plant
World Energy Data System (WENDS)	[CONF-790803-50] 25 p0177 N80-15629
[CONF-790461-2] 25 p0112 N80-11587	Technical support for open-cycle MHD program
Preliminary materials assessment in solar	[ANL/MHD-78-11] 25 p0181 N80-15942
demonstration systems [ANL/EES-CP-30] 25 p0115 N80-11619	ARIZONA STATE UNIV., TEMPE.  Conversion of cellulosic and waste polymer
Underground pumped hydro storage: An overview	material to gasoline
[CONF-781046-1] 25 p0116 N80-11624	[COO-2982-38] 25 p0169 N80-15291
Design optimization of aquifer reservoir-based	ARIZONA UNIV., TUCSON.
compressed air storage systems	Analysis and simulated diagenesis of kerogen in
[CONF-781046-5] 25 p0116 N80-11628 World Energy Data System (WENDS). Volume 11:	<ul> <li>a recent bottom mud from Mono Lake, California</li> <li>A comparison with selected ancient kerogens</li> </ul>
Nuclear fission program summaries	25 p0085 A80-20378
[ANL-PMS-79-2-VOL-11] 25 p0124 N80-12562	West Coast Forum on Appropriate Technology
Combined effects of polycyclic aromatic	[PB-298986/1] 25 p0166 N80-14962
hydrocarbons and sunlight	ARMY CONSTRUCTION ENGINEERING RESEARCH LAB.,
[CONF-790447-4] 25 p0131 N80-12631	CHAMPAIGH, ILL.
Experimental two-phase liquid-metal magnetohydrodynamic generator program	The Building Loads Analysis System Thermodynamics (BLAST) program, version 2.0
[AD-A073128] 25 p0132 N80-12882	Input booklet
World Energy Data System (WENDS). Volume 7:	[AD-A072435] 25 p0107 N80-11259
Nuclear facility profiles, AG-CH	ARMY RESEARCH OFFICE, WASHINGTON, D. C.
[ANL-PMS-79-2-VOL-7] 25 p0139 N80-13629	Puel cell sesquicentennial
World energy data system (WENDS). Volume 8:	25 p0033 A80-13223
Nuclear facility profiles, CO-HU [ANL-PMS-79-2-VOL-8] 25 p0139 N80-13630	ATOMICS INTERNATIONAL, GOLDEN, COLO.  Quality assurance in alternative energy sources
Assessment of Stirling engine potential in total	[RHO-SA-107] 25 p0095 N80-10504
and integrated energy systems	AUSTRIAN SOLAR AND SPACE AGENCY, VIENNA.
[ANL/ES-76] 25 p0140 N80-13636	Solar energy with latent heat storage:
Status of development, energy and economics	Fundamentals and applications
aspects of alternative technologies [CONF-790371-1] 25 p0145 N80-13689	[ASSA-10/1978] 25 p0116 N80-11632
Materials testing for central receiver	n
solar-thermal power systems	В
[TID-29443] 25 p0146 N80-13695	BABCOCK AND WILCOX CO., ALLIANCE, OHIO.
OTEC power systems	Characterization and combustion of SRC 2 fuel oil
[CONF-790444-2] 25 p0146 N80-13696	[EPRI-FP-1028] 25 p0119 N80-12192
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems	[EPRI-FP-1028] 25 p0119 N80-12192 BATTELLE COLUMBUS LABS., OHIO.
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706	[EPRI-FP-1028] 25 p0119 N80-12192 BATTELLE COLUMBUS LABS., OHIO. Sugar crops as a source of fuels. Volume 1:
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPF-78-4] 25 p0149 N80-13941	[EPRI-FP-1028] 25 p0119 N80-12192 BATTELLE COLUMBUS LABS., OHIO. Sugar crops as a source of fuels. Volume 1: Agricultural research [TID-29400/1] 25 p0093 N80-10395
[CONF-790444-2] 25 p0146 N80-13696  Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706  Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941  High-BTU coal gasification processes	[EPRI-FP-1028] 25 p0119 N80-12192 BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263	[EPRI-FF-1028] 25 p0119 N80-12192 BATTELLE COLUMBUS LABS., OHIO. Sugar crops as a source of fuels. Volume 1: Agricultural research [TID-29400/1] 25 p0093 N80-10395 SEASAT demonstration experiments with the offshore oil, gas and mining industries
[CONF-790444-2] 25 p0146 N80-13696  Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706  Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941  High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263  Experimental verification of the mercury-iodine	[EPRI-FF-1028] 25 p0119 N80-12192 BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the     offshore oil, gas and mining industries     [NASA-CE-162423] 25 p0108 N80-11532
[CONF-790444-2] 25 p0146 N80-13696  Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706  Pusion power program [ANL/PPP-78-4] 25 p0149 N80-13941  High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263  Experimental verification of the mercury-iodine thermochemical cycle for the production of	[ EPRI-FF-1028] 25 p0119 N80-12192 BATTELLE COLUMBUS LABS., OHIO. Sugar crops as a source of fuels. Volume 1: Agricultural research [TID-29400/1] 25 p0093 N80-10395 SEASAT demonstration experiments with the offshore oil, gas and mining industries [NASA-CR-162423] 25 p0108 N80-11532 Preliminary assessment of industrial needs for
[CONF-790444-2] 25 p0146 N80-13696  Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706  Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941  High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263  Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265	[EPRI-FF-1028] 25 p0119 N80-12192 BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the     offshore oil, gas and mining industries     [NASA-CE-162423] 25 p0108 N80-11532
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPF-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Fusarium species: Their potential for	[EPRI-FF-1028] 25 p0119 N80-12192 BATTELLE COLUMBUS LABS., OHIO. Sugar crops as a source of fuels. Volume 1: Agricultural research [TID-29400/1] 25 p0093 N80-10395 SEASAT demonstration experiments with the offshore oil, gas and mining industries [NASA-CR-162423] 25 p0108 N80-11532 Preliminary assessment of industrial needs for an advanced ocean technology [NASA-CR-162435] 25 p0118 N80-11747 Photovoltaic concentrator application
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol	[EPRI-FP-1028] 25 p0119 N80-12192 BATTELLE COLUMBUS LABS., OHIO. Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395 SEASAT demonstration experiments with the     offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532 Preliminary assessment of industrial needs for     an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747 Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271	[EFRI-FF-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center
[CONF-79044-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPF-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSV/IM-2] 25 p0159 N80-14525	[EFRI-FF-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPF-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSV/IM-2] Lithium/metal sulfide battery development	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid     [D0E/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TH-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSY/TM-2] 25 p0159 N80-14525 Lithium/metal sulfide battery development [CONF-790538-10] 25 p0159 N80-14530	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid     [D0E/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BFU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSV/TM-2] 25 p0159 N80-14525 Lithium/metal sulfide battery development [CONF-790538-10] 25 p0159 N80-14530 Advanced batteries for electric vehicles: A	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid [D0E/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483
[CONF-79044-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPF-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSV/TM-2] Lithium/metal sulfide battery development [CONF-790538-10] 25 p0159 N80-14530 Advanced batteries for electric vehicles: A look at the future	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid     [DOE/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CH-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BFU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSV/TM-2] 25 p0159 N80-14525 Lithium/metal sulfide battery development [CONF-790538-10] 25 p0159 N80-14530 Advanced batteries for electric vehicles: A	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid [D0E/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483
[CONF-79044-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPF-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSV/IM-2] 25 p0159 N80-14525 Lithium/metal sulfide battery development [CONF-790538-10] 25 p0159 N80-14530 Advanced batteries for electric vehicles: A look at the future [CONF-790484-1] 25 p0159 N80-14531 Overview of the Department of Energy's research, development and demonstration program for the	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid     [DOE/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results     [PB-298473/0] 25 p0165 N80-14595
[CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Fusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSY/IM-2] 25 p0159 N80-14525 Lithium/metal sulfide battery development [CONF-790538-10] 25 p0159 N80-14530 Advanced batteries for electric vehicles: A look at the future [CONF-790484-1] 25 p0159 N80-14531 Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the     offshore oil, gas and mining industries     [NSA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for     an advanced ocean technology     [NSA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic     concentrator power system for load-center     applications with feedback into the utility grid     [DOE/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for     predicting the service life of the solar array     at Mead, Nebraska     [NSA-CR-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed     combustion of coal: Methodology and initial     results     [PB-298473/0] 25 p0165 N80-14595  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH.
CONF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSY/TM-2] 25 p0159 N80-14525 Lithium/metal sulfide battery development [CONF-790538-10] 25 p0159 N80-14530 Advanced batteries for electric vehicles: A look at the future [CONF-790484-1] 25 p0159 N80-14531 Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid [DOE/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results     [PR-298473/0] 25 p0165 N80-14595  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH.     Assessment of synfuel transportation to year 2000
[CONF-79044-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSV/IM-2] 25 p0159 N80-14525 Lithium/metal sulfide battery development [CONF-790538-10] 25 p0159 N80-14530 Advanced batteries for electric vehicles: A look at the future [CONF-790484-1] 25 p0159 N80-14531 Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste [CONF-790373-1] 25 p0163 N80-14562	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid     [DOE/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results     [PB-298473/0] 25 p0165 N80-14595  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH. Assessment of synfuel transportation to year 2000     [PNL-2768] 25 p0092 N80-10382
COMF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSY/IM-2] 25 p0159 N80-14525 Lithium/metal sulfide battery development [CONF-790538-10] 25 p0159 N80-14530 Advanced batteries for electric vehicles: A look at the future [CONF-790484-1] 25 p0159 N80-14531 Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste [CONF-790373-1] 25 p0163 N80-14562 Review of industrial participation on the ANL lithium/iron sulfide battery development program	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid [DOE/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results     [PR-298473/0] 25 p0165 N80-14595  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH.     Assessment of synfuel transportation to year 2000
[CONF-79044-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FP-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSV/IM-2] 25 p0159 N80-14525 Lithium/metal sulfide battery development [CONF-790538-10] 25 p0159 N80-14530 Advanced batteries for electric vehicles: A look at the future [CONF-790484-1] 25 p0159 N80-14531 Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste [CONF-790373-1] 25 p0163 N80-14562 Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-780852-1] 25 p0164 N80-14573	BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1]     SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423]     Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435]     Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid     [DOE/CS-34267/1]     Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534]     Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results     [PB-298473/0]     BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH.     Assessment of synfuel transportation to year 2000     [PNL-2768]     Summary report of the Solar Reflective Materials Technology Workshop     [PNL-2763]     25 p0097 N80-10613
CONF-79044-2]  Community heating and cooling systems [CONF-790446-6]  Pusion power program [ANL/FPP-78-4]  High-BTU coal gasification processes [ANL/CES/TE-79-2]  Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11]  Evanium species: Their potential for transforming biomass to ethanol [ANL/EES/TH-38]  Efinition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSY/H-2]  Lithium/metal sulfide battery development [CONF-790538-10]  Advanced batteries for electric vehicles: A look at the future [CONF-790484-1]  Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste [CONF-790373-1]  Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-780852-1]  Distribution and classification of local	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the     offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for     an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic     concentrator power system for load-center     applications with feedback into the utility grid     [DOE/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for     predicting the service life of the solar array     at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed     combustion of coal: Methodology and initial     results     [PB-298473/0] 25 p0165 N80-14595  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH.     Assessment of synfuel transportation to year 2000     [PNL-2768] 25 p0092 N80-10382  Summary report of the Solar Reflective Materials     Technology Workshop     [PNL-2763] 25 p0097 N80-10613  Methodology for identifying materials
COMF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSY/IM-2] 25 p0159 N80-14525 Lithium/metal sulfide battery development [CONF-790538-10] 25 p0159 N80-14530 Advanced batteries for electric vehicles: A look at the future [CONF-790484-1] 25 p0159 N80-14531 Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste [CONF-790373-1] 25 p0163 N80-14562 Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-780852-1] 25 p0164 N80-14573 Distribution and classification of local socio-economic impacts from energy development	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid     [D0E/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results     [PNE-298473/0] 25 p0165 N80-14595  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH. Assessment of synfuel transportation to year 2000     [PNL-2768] 25 p0092 N80-10382  Summary report of the Solar Reflective Materials Technology Workshop     [PNL-2763] 25 p0097 N80-10613  Methodology for identifying materials constraints to implementation of solar energy
CONF-79044-2]  Community heating and cooling systems [CONF-790446-6]  Pusion power program [ANL/FPP-78-4]  High-BTU coal gasification processes [ANL/CES/TE-79-2]  Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11]  Evanium species: Their potential for transforming biomass to ethanol [ANL/EES/TH-38]  Efinition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSY/H-2]  Lithium/metal sulfide battery development [CONF-790538-10]  Advanced batteries for electric vehicles: A look at the future [CONF-790484-1]  Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste [CONF-790373-1]  Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-780852-1]  Distribution and classification of local	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the     offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for     an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic     concentrator power system for load-center     applications with feedback into the utility grid     [DOE/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for     predicting the service life of the solar array     at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed     combustion of coal: Methodology and initial     results     [PB-298473/0] 25 p0165 N80-14595  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH.     Assessment of synfuel transportation to year 2000     [PNL-2768] 25 p0092 N80-10382  Summary report of the Solar Reflective Materials     Technology Workshop     [PNL-2763] 25 p0097 N80-10613  Methodology for identifying materials
COMF-790444-2] 25 p0146 N80-13696 Community heating and cooling systems [CONF-790446-6] 25 p0147 N80-13706 Pusion power program [ANL/FPP-78-4] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] 25 p0150 N80-14265 Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TH-38] 25 p0151 N80-14271 Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSY/TM-2] 25 p0159 N80-14525 Lithium/metal sulfide battery development [CONF-790538-10] 25 p0159 N80-14530 Advanced batteries for electric vehicles: A look at the future [CONF-790484-1] 25 p0159 N80-14531 Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste [CONF-790373-1] Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-780852-1] 25 p0164 N80-14573 Distribution and classification of local socio-economic impacts from energy development [CONF-790481-1] 25 p0166 N80-14954 Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid     [DOE/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results     [PB-298473/0] 25 p0165 N80-14595  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH.     Assessment of synfuel transportation to year 2000     [PNL-2768] 25 p0092 N80-10382  Summary report of the Solar Reflective Materials Technology Workshop     [PNL-2763] 25 p0097 N80-10613  Methodology for identifying materials     constraints to implementation of solar energy technologies
CONF-79044-2]  Community heating and cooling systems [CONF-790446-6]  Pusion power program [ANL/FPP-78-4]  Igh-BTU coal gasification processes [ANL/CES/TE-79-2]  Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4  [CONF-780807-11]  Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TH-38]  Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSV/TM-2]  Lithium/metal sulfide battery development [CONF-790538-10]  Advanced batteries for electric vehicles: A look at the future [CONF-790484-1]  Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste [CONF-790373-1]  Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-790373-1]  Everview of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-790481-1]  Socio-economic impacts from energy development (CONF-790481-1)  Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques [CONF-790480-1]  25 p0167 N80-15259	BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid     [DOE/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results     [PB-298473/0] 25 p0165 N80-14595  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH. Assessment of synfuel transportation to year 2000     [PNL-2768] 25 p0092 N80-10382  Summary report of the Solar Reflective Materials Technology Workshop     [PNL-2763] 25 p0097 N80-10613  Methodology for identifying materials constraints to implementation of solar energy technologies     [PNL-2711] 25 p0098 N80-10625  User manual for GEOCITY: A computer model for geothermal district heating cost analysis
CONF-79044-2]  Community heating and cooling systems [CONF-790446-6]  Pusion power program [ANL/FPF-78-4]  High-BTU coal gasification processes [ANL/CES/TE-79-2]  Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11]  Evarium species: Their potential for transforming biomass to ethanol [ANL/EES/TH-38]  Efinition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSY/H-2]  Lithium/metal sulfide battery development [CONF-790538-10]  Advanced batteries for electric vehicles: A look at the future [CONF-790484-1]  Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste [CONF-790373-1]  Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-790481-1]  Distribution and classification of local socio-economic impacts from energy development [CONF-790481-1]  Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques [CONF-790480-1]  Environmental planning and assessment for	[EPRI-FP-1028]  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1]  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423]  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435]  Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid [DOE/CS-34267/1]  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534]  Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results     [PB-298473/0]  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH. Assessment of synfuel transportation to year 2000     [PNL-2768]  Summary report of the Solar Reflective Materials     Technology Workshop     [PNL-2763]  Methodology for identifying materials     constraints to implementation of solar energy technologies     [PNL-2711]  User manual for GEOCITY: A computer model for geothermal district heating cost analysis      [PNL-2742]  25 p0113 N80-11605
COMF-79044-2]  Community heating and cooling systems  [CONF-790446-6]  Pusion power program  [ANL/FPP-78-4]  Igh-BTU coal gasification processes  [ANL/CES/TE-79-2]  Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4  [CONF-780807-11]  Pusarium species: Their potential for transforming biomass to ethanol  [ANL/ES/TH-38]  Definition and analysis of the barriers to the implementation of urban energy recovery systems  [ANL/CNSY/TH-2]  Lithium/metal sulfide battery development  [CONF-790538-10]  Advanced batteries for electric vehicles: A look at the future  [CONF-790484-1]  Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste  [CONF-790473-1]  Review of industrial participation on the ANL lithium/iron sulfide battery development [CONF-790481-1]  Sp 0163 N80-14562  Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-790481-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels	[EPRI-FP-1028] 25 p0119 N80-12192 BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395 SEASAT demonstration experiments with the     offshore oil, gas and mining industries     [NSA-CR-162423] 25 p0108 N80-11532 Preliminary assessment of industrial needs for     an advanced ocean technology     [NSA-CR-162435] 25 p0118 N80-11747 Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic     concentrator power system for load-center     applications with feedback into the utility grid     [D0E/CS-34267/1] 25 p0145 N80-13688 Development of an accelerated test design for     predicting the service life of the solar array     at Mead, Nebraska     [NSA-CR-162534] 25 p0154 N80-14483 Environmental assessment of the fluidized-bed     combustion of coal: Methodology and initial     results     [PB-298473/0] 25 p0165 N80-14595 BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH.     Assessment of synfuel transportation to year 2000     [PNL-2768] 25 p0092 N80-10382 Summary report of the Solar Reflective Materials     Technology Workshop     [PNL-2763] 25 p0097 N80-10613 Methodology for identifying materials     constraints to implementation of solar energy     technologies     [PNL-2711] 25 p0098 N80-10625 User manual for GEOCITY: A computer model for     geothermal district heating cost analysis     [PNL-2742] 25 p0113 N80-11605
CONF-79044-2]  Community heating and cooling systems [CONF-790446-6]  Pusion power program [ANL/FPF-78-4]  High-BTU coal gasification processes [ANL/CES/TE-79-2]  Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11]  Evarium species: Their potential for transforming biomass to ethanol [ANL/EES/TH-38]  Efinition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSY/H-2]  Lithium/metal sulfide battery development [CONF-790538-10]  Advanced batteries for electric vehicles: A look at the future [CONF-790484-1]  Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste [CONF-790373-1]  Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-790481-1]  Distribution and classification of local socio-economic impacts from energy development [CONF-790481-1]  Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques [CONF-790480-1]  Environmental planning and assessment for	BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1]     25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423]     25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435]     Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid     [DOE/CS-34267/1]     25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CH-162534]     Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results     [PB-298473/0]  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH.  Assessment of synfuel transportation to year 2000     [PNL-2768]     Summary report of the Solar Reflective Materials     Technology Workshop     [PNL-2763]     Methodology for identifying materials     constraints to implementation of solar energy technologies     [PNL-2711]     User manual for GEOCITY: A computer model for geothermal district heating cost analysis     [PNL-2742]     Compressed air energy storage technology program     [PNL-2735]     25 p0160 N80-14534
COMF-79044-2] Community heating and cooling systems [CONF-790446-6] Pusion power program [ANL/FPF-78-4] Igh-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0149 N80-13941 High-BTU coal gasification processes [ANL/CES/TE-79-2] 25 p0150 N80-14263 Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4 [CONF-780807-11] Pusarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38] Definition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSY/TM-2] Lithium/metal sulfide battery development [CONF-790538-10] Look at the future [CONF-790484-1] Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste [CONF-790373-1] Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-780852-1] Distribution and classification of local socio-economic impacts from energy development [CONF-790481-1] Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques [CONF-790520-2] Environmental planning and assessment for highway vehicle use to alcohol fuels [CONF-790520-2] Espoins Non-15281 Enat pump centered integrated community energy systems: Systems development	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid [D0E/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results     [PB-298473/0] 25 p0165 N80-14595  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH. Assessment of synfuel transportation to year 2000     [PNL-2768] 25 p0092 N80-10382  Summary report of the Solar Reflective Materials Technology Workshop     [PNL-2763] 25 p0097 N80-10613  Methodology for identifying materials constraints to implementation of solar energy technologies     [PNL-2711] 25 p0098 N80-10625  User manual for GEOCITY: A computer model for geothermal district heating cost analysis     [PNL-2742] 25 p0113 N80-11605  Compressed air energy storage technology program     [PNL-235] 25 p0160 N80-14534
CONF-79044-2]  Community heating and cooling systems  [CONF-790446-6]  Pusion power program  [ANL/FPF-78-4]  Igh-BTU coal gasification processes  [ANL/CES/TE-79-2]  Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4  [CONF-780807-11]  Pusarium species: Their potential for transforming biomass to ethanol  [ANL/EES/TH-38]  Definition and analysis of the barriers to the implementation of urban energy recovery systems  [ANL/CNSV/TM-2]  Lithium/metal sulfide battery development  [CONF-790538-10]  Advanced batteries for electric vehicles: A look at the future  [CONF-790484-1]  Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste  [CONF-790373-1]  Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-790378-1]  Experimental participation on the ANL lithium/iron sulfide battery development program [CONF-790481-1]  Experimental participation on the ANL lithium/iron sulfide battery development program [CONF-790481-1]  Experimental participation on the ANL lithium/iron sulfide battery development program [CONF-790481-1]  Experimental participation of local socio-economic impacts from energy development [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway	BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1]     SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423]     Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435]     Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid     [DOE/CS-34267/1]
CONF-79044-2]  Community heating and cooling systems [CONF-790446-6]  Pusion power program [ANL/FPF-78-4]  High-BTU coal gasification processes  [ANL/CES/TE-79-2]  Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4  [CONF-780807-11]  Evarium species: Their potential for transforming biomass to ethanol [ANL/EES/TM-38]  Efinition and analysis of the barriers to the implementation of urban energy recovery systems [ANL/CNSY/M-2]  Lithium/metal sulfide battery development  [CONF-790538-10]  Advanced batteries for electric vehicles: A look at the future [CONF-790484-1]  Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste  [CONF-790373-1]  Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-790481-1]  Distribution and classification of local socio-economic impacts from energy development  [CONF-790481-1]  Long-term erosion monitoring of metallic conduits by ultrasonic pulse-echo techniques [CONF-790480-1]  Environmental planning and assessment for highway vehicle use to alcohol fuels  [CONF-790500-2]  Beat pump centered integrated community energy systems: Systems development  [ANL/ICES-TM-30]  Heat pump centered integrated community energy	[EPRI-FP-1028] 25 p0119 N80-12192  BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1] 25 p0093 N80-10395  SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423] 25 p0108 N80-11532  Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435] 25 p0118 N80-11747  Photovoltaic concentrator application experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid [D0E/CS-34267/1] 25 p0145 N80-13688  Development of an accelerated test design for predicting the service life of the solar array at Mead, Nebraska     [NASA-CR-162534] 25 p0154 N80-14483  Environmental assessment of the fluidized-bed combustion of coal: Methodology and initial results     [PB-298473/0] 25 p0165 N80-14595  BATTELLE PACIFIC NORTHWEST LABS., RICHLAND, WASH. Assessment of synfuel transportation to year 2000     [PNL-2768] 25 p0092 N80-10382  Summary report of the Solar Reflective Materials Technology Workshop     [PNL-2763] 25 p0097 N80-10613  Methodology for identifying materials constraints to implementation of solar energy technologies     [PNL-2711] 25 p0098 N80-10625  User manual for GEOCITY: A computer model for geothermal district heating cost analysis     [PNL-2742] 25 p0113 N80-11605  Compressed air energy storage technology program     [PNL-235] 25 p0160 N80-14534
CONF-79044-2]  Community heating and cooling systems  [CONF-790446-6]  Pusion power program  [ANL/FPF-78-4]  Igh-BTU coal gasification processes  [ANL/CES/TE-79-2]  Experimental verification of the mercury-iodine thermochemical cycle for the production of hydrogen from water, ANL-4  [CONF-780807-11]  Pusarium species: Their potential for transforming biomass to ethanol  [ANL/EES/TH-38]  Definition and analysis of the barriers to the implementation of urban energy recovery systems  [ANL/CNSV/TM-2]  Lithium/metal sulfide battery development  [CONF-790538-10]  Advanced batteries for electric vehicles: A look at the future  [CONF-790484-1]  Overview of the Department of Energy's research, development and demonstration program for the recovery of energy and materials from urban waste  [CONF-790373-1]  Review of industrial participation on the ANL lithium/iron sulfide battery development program [CONF-790378-1]  Experimental participation on the ANL lithium/iron sulfide battery development program [CONF-790481-1]  Experimental participation on the ANL lithium/iron sulfide battery development program [CONF-790481-1]  Experimental participation on the ANL lithium/iron sulfide battery development program [CONF-790481-1]  Experimental participation of local socio-economic impacts from energy development [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway vehicle use to alcohol fuels [CONF-790480-1]  Experimental planning and assessment for highway	BATTELLE COLUMBUS LABS., OHIO.  Sugar crops as a source of fuels. Volume 1:     Agricultural research     [TID-29400/1]     SEASAT demonstration experiments with the offshore oil, gas and mining industries     [NASA-CR-162423]     Preliminary assessment of industrial needs for an advanced ocean technology     [NASA-CR-162435]     Photovoltaic concentrator application     experiment. Phase 1: A 150 kW photovoltaic concentrator power system for load-center applications with feedback into the utility grid     [DOE/CS-34267/1]

[BNL-25908]

```
BECHTEL MATIONAL, INC., SAM PRANCISCO, CALIFA
Technical and economic assessment of solar
powered water pumping for remote areas
                                                                                                                    Highlights of the energy technology programs
                                                                                                                    [BNL-50959] 25 p0157 N80-14512

Dynamic energy system optimization model
                                                                                                                    [EPRI-EA-1079] 25 p0157 N80-1
Solid electrolyte fuel cell for electric power
                                                                                                                                                                               25 p0157 N80-14514
         [SAND-79-8187]
                                                                25 p0129 N80-12608
BENDIX CORP., ENGLEWOOD, COLO.
Automated longwall guidance and control systems,
                                                                                                                       generation
                                                                                                                       [BNL-26238]
                                                                                                                                                                               25 p0158 N80-14522
     [NASA-CR-161329] 25 p0122 N80-12538
Automated longwall guidance and control systems,
phase 2, part 2: Vertical control system (VCS)
[NASA-CR-161330] 25 p0122 N80-12539
                                                                                                                    Evilaution of performance enhancement of solar powered absorption chiller with an improved control strategy using the BNL-built hardware
     Automated longwall guidance and control systems,
                                                                                                                       [BNL-26218]
                                                                                                                                                                               25 p0162 N80-14552
Automated longwall guidance and control systems, phase 2, part 2: RCS, FAS, and MCS
[NASA-CB-161331] 25 p0122 N80-12540
BENDIX CORP., KANSAS CITY, MO.
COOling aluminum molds using heat pipes
[BDX-613-2039-REV] 25 p0108 N80-11384
BITUHINOUS COAL RESEARCH, INC., MONROEVILLE, PA.
Gas generator research and development: BI-GAS
                                                                                                                    High temperature electrolysis [BNL-26331]
                                                                                                                                                                               25 p0167 N80-15227
                                                                                                                    Partial discharge performance of lapped plastic
                                                                                                                       insulation for superconducting power
                                                                                                                       insulation for superconducting re---
transmission cables and the dielectric
strength of supercritical helium gas
[BNL-24779] 25 p0170 N80-15346
        process
                                                                                                                    MARKAL: A multiperiod linear-programming model
[FE-1207-62] 2
BOBING AEROSPACE CO., SEATTLE, WASH.
                                                                                                                    for energy systems analysis (BML version)
[BNL-26390] 25 p0178 N80-15634
Fusion energy for hydrogen production
                                                                25 p0135 N80-13288
     Weight optimization of ultra large space
                                                                                                             Pusion energy for hydrogen production
[BNL-24906] 25 p0180 N80-1
BROOKLYN UNION GAS CO., N. Y.

Methane recovery from sanitary landfills; gas
recovery system installation and testing
[PB-296622/4] 25 p0107 N80-1
BROWN AND ROOT, INC., HOUSTON, TEX.

Solar power satellite system definition study.
Volume 1: Executive summary
[NASA-CR-160442] 25 p0167 N80-1
BUREAU OF MINES, DENVER, COLO.
Three potential longwall mining methods for
thick coal seams in the western United State
                                                                                                                                                                               25 p0180 N80-15897
         structures
         [SAWE PAPER 1301]
                                                                25 p0086 A80-20641
     Solar power satellite system definition study,
         phase 2.
     phase 2. 25 pol105 N80-1 Solar power satellite system definition study, phase 2. Part 1: Midterm briefing
                                                                25 p0105 N80-11121
                                                                                                                                                                              25 p0107 N80-11254
     [NASA-CR-160378] 25 p0105 N80-1
Solar power satellite system definition study.
Volume 1: Executive summary
                                                               25 p0105 N80-11122
                                                                                                                                                                               25 p0167 N80-15195
         [NASA-CR-160442]
                                                                25 p0167 N80-15195
BOEING ENGINEERING AND CONSTRUCTION, SEATTLE, WASH.
Linear concentration solar collector in an air
supported enclosure. Preliminary design study
                                                                                                              thick coal seams in the western United States [PB-299568/6] 25 p0170 N80-15544
BURRAU OF RECLAMATION, BOULDER CITY, NEW.
Solar thermal electric plants in hydroelectric
         [SAND-78-7022]
                                                               25 p0141 N80-13644
BOOZ-ALLEN AND HAMILTON, INC., BETHESDA, MD.
EPRI new energy resources department strategy
                                                                                                                       grid
                                                                                                              [DOE/SF/10505-1] 25 p0143 N80-13663
BURT, HILL, KOSAR, RITTLEMAN, AND ASSOCIATES,
         paper
                                                                                                              BUTLER, PA.
         [EPEI-ER-979]
                                                                25 p0097 N80-10610
BOSTON UNIV., MASS.
Photosensitization mechanisms for energy storing
                                                                                                                    Residential photovoltaic module and array
                                                                                                                       requirements study, appendices
25 p0154 N80-14481
         isomerizations
                                                                                                                    Residential photovoltaic module and array requirements study
[NASA-CR-162528] 25 p0154 p
         [AD-A074968]
                                                                25 p0156 N80-14502
Energy storing organic photoreactions
[AD-A074915] 25 p0 156 N80-1450
BRAUN (C. F.) AND CO., ALHAMBRA, CALIF.
Experimental enthalpies for a mixture of 80 mole
percent isobutane in isopentane
[EPRI-ER-1034] 25 p0 118 N80-1191
BROOKHAVEN NATIONAL LAB., UPTON, B. Y.
Solars assisted heat pump overview and summary of
                                                                25 p0156 N80-14503
                                                                                                                                                                               25 p0154 N80-14482
                                                                                                              CALIFORNIA UNIV., BERKELEY. LAWRENCE BERKELEY LAB.
Another look at energy conservation
[LBL-7893] 25 p0097 N80-106
                                                               25 p0118 N80-11935
                                                                                                                                                                              25 p0097 N80-10611
     Solar assisted heat pump overview and summary of
                                                                                                                    Energy conservation and the environment: conflict or complement
         in-house research
         [BNL-24911]
                                                                25 p0098 N80-10624
     Unamics and control: Energy conversion,
delivery, and demand analysis
[BNL-26045] 25 p0099 N80-10633
State of the art of sensible heat storage for
                                                                                                                       [LBL-7882]
                                                                                                                                                                               25 p0098 N80-10621
                                                                                                                    On-line tests of organic additives for the
                                                                                                                       Pline tests or organic additives for the inhibition of the precipitation of silica from hypersaline geothermal brine. 2: Tests of nitrogen-containing compounds, silanes, and additional ethoxylated compounds [UCID-18195] 25 p0110 N80-1150 or thermal energy for industrial application
     solar heat pump systems
[BNL-25909] 25 p0101 N80-
One- and two-dimensional heating analyses of
fusion synfuel blankets
[BNL-NUREG-25635] 25 p0104 N80-
                                                                25 p0101 N80-10651
                                                                                                                    [UCID-18195] . 25 p0110 N80-11567
Geothermal energy for industrial application
[LBL-8919] . 25 p0111 N80-11579
                                                               25 p0104 N80-10922
                                                                                                                    Energy conservation: Policy issues and end-use scenarios of savings potential. Part 3:
Policy barriers and investment decisions in
     Regional reference energy systems:
                                                                      Electric
         utility applications
[BNL-50962]
                                                                25 p0111 N80-11585
      Environmental control technology for carbon
                                                                                                                       [LBL-7896-PT-3]
         dioxide
                                                                                                                                                                               25 p0114 N80-11614
         [BNL-24999]
                                                                                                                    A manual for cataloging and indexing documents
[LBL-4432-REV-1] 25 p0118 N80-11946
Experimental test facility for evaluation of
                                                                25 p0117 N80-11639
     Solar-powered steam generator heliostat
                                                                25 p0129 N80-12610
         [BNL-50974]
     Regenerative process for desulfurization of high
                                                                                                                        solar control strategies
         generative process for description gases temperature combustion and fuel gases
                                                                                                                       [ LBT-8308 ]
                                                                                                                                                                               25 p0126 N80-12586
                                                                                                                    Residential on site solar heating systems. A
     Coal conversion in flash hydropyrolysis reactors
[BNL-26209] 25 p0136 N80-13294
                                                                                                                       project evaluation using the capital asset
                                                                                                                   project evaluation using the captual target pricing model [LBL-8298] 25 p0126 N Analysis of the California solar resource, volume 2 [LBL-7860-VOL-2] 25 p0127 N
      Hydrogen-halogen energy storage system
                                                                                                                                                                               25 p0126 N80-12588
     25 p0127 N80-12589
                                                                                                                    Circumsolar radiation data for central receiver
         requirement house
                                                                                                                       simulation
         [BNL-50968]
                                                                25 p0142 N80-13651
                                                                                                                       [LBL-8371]
      Design, construction, and operation of the solar assisted heat pump ground coupled storage experiments at Brookhaven National Laboratory
                                                                                                                    Measurement of circumsolar radiation: Status
                                                                                                                       report
                                                                                                                       [LBL-8391]
                                                                                                                                                                               25 p0133 N80-12982
```

25 p0142 N80-13654

Characterization of solid-waste conversion and	Process design and economic analysis of the zinc
cogeneration systems	selenide thermochemical hydrogen cycle
[LBL-7883] 25 p0141 N80-13648	[UCBL-52546] 25 p0164 N80-14571
Thermal performance of buildings and building	Assessment of the applicability of mechanical
envelope systems: An annotated bibliography	energy storage devices to electric and hybrid
[LBL-8925] 25 p0145 N80-13680	vehicles. Volume 1: Executive summary
Proceedings of the Thermal Energy Storage in	[UCRL-52773-VOL-1] 25 p0166 N80-14973
Aguifers Workshop	Simulation of LNG vapor spread and dispersion by
[LBL-8431] 25 p0160 N80-14533	finite element methods
Thermal degradation of a black chrome solar	[UCRL-82441] 25 p0168 N80-15282
selective absorber coating: Short term	Novel scheme for making cheap electricity with
[LBL-8857] 25 p0161 N80-14549	nuclear energy
Geothermal energy development from the Salton	[UCID-18153-REV-1] 25 p0171 N80-15564
Trough to the High Cascades	Laminated disk flywheel program
[LBL-8703] 25 p0171 N80-15568	[UCRL-81772] 25 p0175 N80-15612
Aquifer thermal energy storage	Environmental overview of geothermal
[LBL-7070] 25 p0176 N80-15618	development: The Geysers-Calistoga KGRA.
CALIFORNIA UNIV., DAVIS.	Volume 1: Issues and recommendations
Pilot plant gasification test on biomass fuels	[UCRL-52496-VOL-1] 25 p0177 N80-15626
[PB-299077/8] 25 p0151 N80-14272	Identification of environmental control
CALIFORNIA UNIV., LIVERMORE.	technologies for geothermal development in the
Using surface waters for supplementing injection	Imperial Valley of California
at the Salton Sea Geothermal Field (SSGF),	[UCBL-52548] 25 p0179 N80-15668
Southern California	Superconductivity for mirror fusion
[UCRL-83011] 25 p0124 N80-12561	[UCRL-81693] 25 p0181 N80-15933
CALIFORNIA UNIV., LIVERMORE. LAWRENCE LIVERMORE LAB.	Energy storage system for automobile propulsion,
Energy transition in California [UCRL-15003] 25 p0097 N80-10619	1978 study. 2: Detailed report
	[UCRL-52553-VOL-2] 25 p0181 N80-15995
Methods of estimating the reliability of wind energy systems with storage	CALIFORNIA UNIV., LOS ANGELES.
[UCRL-15005] 25 p0098 N80-10623	Aeroelastic stability and response of horizontal
Effect of mechanical energy storage systems on	axis wind turbine blades
the characteristics of electric vehicles	25 p0032 A80-13116 CALIFORNIA UNIV., BIVERSIDE.
[UCRL-82710] 25 p0102 N80-10664	Seismic refraction investigation of the Salton
The impact of LNG spills on the environment: A	
comparison of dispersion models and	Sea geothermal area, Imperial Valley, California [PB-296547/3] 25 p0118 N80-11711
experimental data	CALIFORNIA UNIV., SAN DIEGO.
[UCRL-81812] 25 p0103 N80-10688	National energy policy and state coastal
Energy storage systems for automobile	programs: A critique of current efforts to
propulsion, 1978 study. 1: Overview and	balance environmental protection and energy
findings	production along the coast
[UCRL-52553-VOL-1] 25 p0105 N80-10970	[SAN-0034/263-1] 25 p0141 N80-13643
Laboratory coal gasifier facility	CAMBRIDGE SYSTEMATICS, INC., MASS.
[UCRL-82602] 25 p0106 N80-11245	Demand for special performance vehicles, 1975 -
Two-dimensional transient dispersion and	2025
adsorption in porous media	[UCRL-13911] 25 p0133 N80-12960
[UCRL-81970] 25 p0108 N80-11386	CARNEGIE-MELLON UNIV., PITTSBURGH, PA.
Materials program for fiber composite flywheels	Optimization of multi-layer front-contact grid
[UCRL-81724] 25 p0115 N80-11618	patterns for solar cells
Environmental aspects of alternative fuels	25 p0028 A80-12816
utilization for highway vehicles	Foam solar sea power: A physical investigation
[UCRL-81841] 25 p0120 N80-12201	25 p0122 N80-12548
Hybrid staging of geothermal energy conversion	CARRIER CORP., SYRACUSE, N. Y.
processes	Development of a high temperature solar powered
[UCID-17949] 25 p0125 N80-12569 New concepts for converting the energy in low-to	water chiller. Volume 3: Phase 1
medium-temperature liquids, with emphasis on	[SAN-1590-1/3-VOL-3] 25 p0101 N80-10654 CENTRO DE ESTUDIOS DE LA ENERGIA, MADRID (SPAIN).
geothermal applications	
[UCRL-52583] 25 p0125 N80-12570	Project CESA-1, a 1 MW solar power plant in Almeria
Mechanical energy storage technology development	[AED-CONF-78-212-011] 25 p0130 N80-12614
for electric and hybrid vehicle applications	CHALMERS UNIV. OF TECHNOLOGY, GOTEBORG (SWEDEN).
[UCRL-81786] 25 p0128 N80-12596	Spectrally selective surfaces with coatings
Numerical modeling of LNG spill phenomena	comprised of ultrafine metal particles
[UCRL-82031] 25 p0130 N80-12625	[AED-CONF-78-212-004] 25 p0115 N80-11620
Environmental aspects of alternative energy	CINCINNATI UNIV., OHIO.
technologies for California	Devonian paleocurrents of the Applachian basin
[UCRL-15002] 25 p0131 N80-12628	[METC/CR-79/22] 25 p0149 N80-13735
Search for fusion power	CLEMSON UNIV., S.C.
[UCRL-81890] 25 p0132 N80-12900	Energy conservation through point source recycle
National energy act of 1978: Far western	with high temperature hyperfiltration
perspective. A study for the US Department of	[PB-299183/4] 25 p0180 N80-15688
Energy, Federal Region 9	COLORADO STATE UNIV., PORT COLLINS.
[UCID-17944-REV-1] 25 p0132 N80-12955	Analysis of a LiCl open-cycle absorption air
Energy system in the Far West: Impacts of the	conditioner which utilizes a packed bed for
National Energy Act of 1978 [UCRL-52754] 25 p0140 N80-13638	regeneration of the absorbent solution driven
	by solar heated air
Tidal pressure response as a reservoir engineering tool	[C00-4546-1] 25 p0101 N80-10652
[UCRL-83012] 25 p0141 N80-13647	Preliminary analysis of a total solar heating system
US energy flow in 1978	[COO-4546-4] 25 p0101 N80-10653
25 p0158 N80-14517	Solar generation of industrial steam.
Non-tracking inflated cylindrical solar	Innovative research program subtask
concentrator	[COC-4546-9] 25 p0101 N80-10656
[UCRL-82721] 25 p0159 N80-14528	Solar cooling performance in CSU Solar House 3
Lawrence Livermore Laboratory geothermal energy	[C00-2858-23] 25 p0143 N80-13668
program: A status report on the development	Trans-seasonal storage of solar energy:
of the Total-Flow concept	Innovative research program subtask
[UCRL-50046-77] 25 p0159 N80-14529	[COO-4546-3] 25 p0144 N80-13672

•	
Performance of residential solar beating and	DEPARTMENT OF ENERGY, SEATTLE, WASH.
cooling system with flat-plate and evacuated	Increased energy from biomass: 1985
tubular collectors: CSU solar house 1	possibilities and problem. Working papers for
[COO-2577-16] 25 p0163 N80-14568	planners [RLC-788-5] 25 p0112 N80-11589
Realistic sizing of residential solar heating and cooling systems	DEPARTMENT OF ENERGY, WASHINGTON, D. C.
[COO-2858-14] 25 p0163 N80-14569	Survey of MHD plant applications
Performance of residential solar heating and	25 p0015 A80-11972
cooling system with flat-plate and evacuated	Economic structure, aggregate production functions and the demand for energy as an
tubular collectors: CSU Solar House 1 [COO-2577-17] 25 p0176 N80-15616	intermediate product: A preliminary analysis
COMBUSTION ENGINEERING, INC., WINDSOR, CONN.	[DOE/EIA-0103/8] 25 p0096 N80-10607
MDAC/Rocketdyne solar receiver: Design review	National energy plan 2 [DOE/TIC-10109] 25 p0097 N80-10618
[SAND-78-8188] 25 p0097 B80-10616 COMISION NACIONAL DE ENERGIA ATOMICA, BUENOS AIRES	[DOE/TIC-10109] 25 p0097 N80-10618 Energy supply and demand in the midterm: 1985,
(ARGENTINA).	1990, and 1995
Photothermal conversion of solar energy into	[DOE/EIA-0102/52] 25 p0097 N80-10620
electricity [DOE-TR-159] 25 p0130 N80-12612	Comprehensive environment, health, and safety program report, FY 1978
[DOE-TR-159] 25 p0130 N80-12612 COMMERCE DEPT., WASHINGTON, D.C.	[DOE/EV-0035] 25 p0098 N80-10630
Petrochemicals: Their economic significance in	Environmental readiness of emerging energy
the domestic economy	technologies [DOE/ERD-0022] 25 p0099 N80-10631
[PB-299733/6] 25 p0181 N80-15992 COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION	Summary of major energy legislation of the 95th
(U. S. SENATE).	Congress
NASA authorization for fiscal year 1980. Part	[DOE/TIC-10118] 25 p0100 N80-10644
4: Index [GPO-51-336] 25 p0104 N80-10964	Waste Heat Utilization: Proceedings of 1978 Engineering Foundation Conference
[GPO-51-336] 25 p0104 N80-10964 COMMITTEE ON ENERGY AND NATURAL RESOURCES (U.S.	[CONF-7808102] 25 p0102 N80-10665
SENATE).	National Gas Survey report to the Pederal Energy
Energy initiatives of the 95th Congress	Regulatory Commission by the Supply-Technical Advisory Task Force on nonconventional natural
[GPO-42-797] 25 p0109 N80-11557 COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE (U.	qas resources
S. HOUSE).	[DOE/FERC-0010] 25 p0107 N80-11251
Solar commercialization	Wind energy systems: Program summary
[GPO-43-586] 25 p0109 N80-11556 COMMITTEE ON SCIENCE AND TECHNOLOGY (U. S. HOUSE).	[DOE/ET-0093] 25 p0111 N80-11578 Department of Energy fossil energy equipment
Passive solar energy programs and plans	development programs
[GPO-36-211] 25 p0095 N80-10599	[CONF-790405-14] 25 p0112 N80-11590
Inventory of advanced energy technologies and	Standby conservation plan no. 2: Emergency building temperature restrictions. Economic
<pre>energy conservation research and development, 1976-1978, volume 1</pre>	analysis
[GPO-41-481] 25 p0122 N80-12550	[DOE/ERA-0047] 25 p0112 N80-11593
Toward the endless frontier: History of the	Residential sector energy forecasts, national
	lamal for 1079 placetricity natural cas
Committee on Science and Technology 1959 - 1979	level for 1978-electricity, natural gas, number two fuel oil and propane
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994	level for 1978-electricity, natural gas, number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601
Committee on Science and Technology 1959 - 1979	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994 COMPUTER GENETICS CORP., WAKEFIELD, MASS. Remote sensing of LNG spill vapor dispersion using Raman LIDAR	<pre>number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621</pre>
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994 COMPUTER GENETICS CORP., WAKEFIELD, MASS. Remote sensing of LNG spill vapor dispersion	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAE [UCRL-13984] 25 p0103 N80-10689	number two fuel oil and propane [DOE/ELA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/PE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/EE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  DAYTON UNIV., OHIO.	number two fuel oil and propane [DOE/EIA-0102/50] International coal technology summary document [DOE/EE-0010] Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] Inventory of advanced energy technologies and
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/PE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAE [UCRL-13984] 25 p0103 N80-10689  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/EE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] 25 p0122 N80-12550
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  DECISION FOCUS, INC., PALO ALTO, CALIF.	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  D  DAYTON UBIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  DECISION FOCUS, INC., PALO ALTO, CALIP. Proposed research planning format for the	number two fuel oil and propane [DOE/EIA-0102/50] International coal technology summary document [DOE/EE-0010] Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  DECISION FOCUS, INC., PALO ALTO, CALIP. Proposed research planning format for the Environmental Assessment Department [EPRI-EA-1018] 25 p0103 N80-10692	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/EBA-0048] 25 p0126 N80-12582
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  DECISION FOCUS, INC., PALO ALTO, CALIP. Proposed research planning format for the Environmental Assessment Department [EPRI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF ENERGY, BARTLESVILLE, OKLA.	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/PE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/ERA-0048] United States magnetic fusion energy program
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAE [UCRL-13984] 25 p0103 N80-10689  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  PECISION FOCUS, INC., PALO ALTO, CALIF. Proposed research planning format for the Environmental Assessment Department [EPHI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF EMERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/EBA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ET-0072] Environmental analysis of synthetic liquid fuels
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  DECISION FOCUS, INC., PALO ALTO, CALIP. Proposed research planning format for the Environmental Assessment Department [EPRI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF ENERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/PE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GFC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/EBA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/EFT-0072] 25 p0126 N80-12583 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0134 N80-13279
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAE [UCRL-13984] 25 p0103 N80-10689  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  PECISION FOCUS, INC., PALO ALTO, CALIF. Proposed research planning format for the Environmental Assessment Department [EPHI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF EMERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273 Driving cycle comparisons of energy economies	number two fuel oil and propane [DOE/EIA-0102/50] International coal technology summary document [DOE/EE-0010] Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GFC-41-481] Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/EEA-0048] United States magnetic fusion energy program [DOE/ET-0072] Environmental analysis of synthetic liquid fuels [DOE/EV-0044] Commercialization strategy report for coal
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  DECISION POCUS, INC., PALO ALTO, CALIF. Proposed research planning format for the Environmental Assessment Department [EPRI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF ENERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/PE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GFC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/EBA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/EFT-0072] 25 p0126 N80-12583 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0134 N80-13279
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAE [UCRL-13984] 25 p0103 N80-10689  D  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  PECISION FOCUS, INC., PALO ALTO, CALIF. Proposed research planning format for the Environmental Assessment Department [EPRI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF ENERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273 Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONF-790520-7] 25 p0134 N80-13274	number two fuel oil and propane [DOE/EIA-0102/50] International coal technology summary document [DOE/EE-0010] Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GFC-41-481] Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/ERA-0048] United States magnetic fusion energy program [DOE/ET-0072] Environmental analysis of synthetic liquid fuels [DOE/EV-0044] Commercialization strategy report for coal liquefaction [TID-28846] Commercialization task force for high Btu
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAE [UCRL-13984] 25 p0103 N80-10689  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  PECISION FOCUS, INC., PALO ALTO, CALIF. Proposed research planning format for the Environmental Assessment Department [EPHI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF EMERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273 Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONF-790520-7] 25 p0134 N80-13274 The 50,000 mile methanol/gasoline blend fleet	number two fuel oil and propane [DOE/FIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/FIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/ERA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ERA-0048] 25 p0126 N80-12583 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0134 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  DECISION FOCUS, INC., PALO ALTO, CALIP. Proposed research planning format for the Environmental Assessment Department [EPHI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF ENERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273  Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONF-790520-7] 25 p0134 N80-13274 The 50,000 mile methanol/gasoline blend fleet study	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GFC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/ERA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ERA-0048] 25 p0136 N80-12583 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0134 N80-13279 Commercialization strategy report for coal liquefaction [IID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [IID-28849] 25 p0135 N80-13286
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS. Remote sensing of LNG spill vapor dispersion using Raman LIDAE [UCRL-13984] 25 p0103 N80-10689  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  PECISION FOCUS, INC., PALO ALTO, CALIF. Proposed research planning format for the Environmental Assessment Department [EPRI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF ENERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273 Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONF-790520-7] 25 p0134 N80-13274 The 50,000 mile methanol/gasoline blend fleet study [CONF-790520-6] 25 p0134 N80-13275	number two fuel oil and propane [DOE/FIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/FIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/ERA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ERA-0048] 25 p0126 N80-12583 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0136 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [TID-28849] 25 p0136 N80-13286 Underground coal conversion. Program description [DOE/EV-0100] Program description
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  Proposed research planning format for the Environmental Assessment Department [EPHI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF ENERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273  Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONF-790520-7] 25 p0134 N80-13274  The 50,000 mile methanol/gasoline blend fleet study [CONF-790520-6] 25 p0134 N80-13275 Ambient temperature, fuel economy, emissions, and trip length	number two fuel oil and propane [DOE/FIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/FIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/FIA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/FIA-0048] 25 p0126 N80-12583 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0136 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Conmercialization task force for high Btu gasification [TID-28849] 25 p0136 N80-13286 Underground coal conversion. Program description [DOE/ET-0100] 25 p0136 N80-13293 Summaries of physical research in the geosciences
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAE [UCRL-13984] 25 p0103 N80-10689  D  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  DECISION FOCUS, INC., PALO ALTO, CALIF. Proposed research planning format for the Environmental Assessment Department [EPHI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF ENERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273 Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONF-790520-7] 25 p0134 N80-13274 The 50,000 mile methanol/gasoline blend fleet study [CONF-790520-6] 25 p0134 N80-13275 Ambient temperature, fuel economy, emissions, and trip length [PB-298847/5] 25 p0166 N80-14976	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/EE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GFC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/EBA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12582 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0134 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [TID-28849] 25 p0136 N80-13285 Underground coal conversion. Program description [DOE/ET-0100] 25 p0136 N80-13285 Summaries of physical research in the geosciences [DOE/EB-0030] 25 p0137 N80-13582
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  D  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  Proposed research planning format for the Environmental Assessment Department [EPHI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF ENERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273  Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONF-790520-7] 25 p0134 N80-13274 The 50,000 mile methanol/gasoline blend fleet  study [CONF-790520-6] 25 p0134 N80-13275 Ambient temperature, fuel economy, emissions, and trip length [PB-298847/5] 25 p0166 N80-14976  DEPARTMENT OF ENERGY, MORGANTOWN, W. VA. Fluidized-bed combustion of high sulfur coals	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GFC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/ERA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12583 Environmental analysis of synthetic liquid fuels [DOE/EF-0044] 25 p0134 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [IDE/ET-0100] 25 p0135 N80-13285 Underground coal conversion. Program description [DOE/ET-0300] 25 p0137 N80-13285 Current U. S. petroleum situation and short-term supply/demand outlook
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS. Remote sensing of LNG spill vapor dispersion using Raman LIDAE [UCRL-13984] 25 p0103 N80-10689  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  DECISION FOCUS, INC., PALO ALTO, CALIF. Proposed research planning format for the Environmental Assessment Department [EPHI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF ENERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273 Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONF-790520-7] 25 p0134 N80-13274 The 50,000 mile methanol/gasoline blend fleet study [CONF-790520-6] 25 p0134 N80-13275 Ambient temperature, fuel economy, emissions, and trip length [PB-298847/5] 25 p0166 N80-14976  DEPARTMENT OF ENERGY, MORGANTOWN, W. VA. Fluidized-bed combustion of high sulfur coals [METC/RI-79/4] 25 p0093 N80-10386	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/EE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GFC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/EBA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12582 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0134 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [TID-28849] 25 p0135 N80-13285 Underground coal conversion. Program description [DOE/ET-0100] 25 p0136 N80-13293 Summaries of physical research in the geosciences [DOE/ER-0030] 25 p0137 N80-13582 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] 25 p0138 N80-13607
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  D  DAYTON UBIV., OHIO.  Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  Proposed research planning format for the Environmental Assessment Department [EPRI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF ENERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273  Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONF-790520-7] 25 p0134 N80-13274 The 50,000 mile methanol/gasoline blend fleet study [CONF-790520-6] 25 p0134 N80-13275 Ambient temperature, fuel economy, emissions, and trip length [PB-298847/5] 25 p0166 N80-14976  DEPARTMENT OF ENERGY, MORGANTOWN, W. VA. Fluidized-bed combustion of high sulfur coals [METC/BI-79/4] 25 p0093 N80-10386  DEPARTMENT OF ENERGY, OAK RIDGE, TENN.	number two fuel oil and propane [DOE/FIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/ERA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ERA-0048] 25 p0126 N80-12582 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0136 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [TID-28849] 25 p0135 N80-13285 Underground coal conversion. Program description [DOE/ER-0030] 25 p0136 N80-13293 Summaries of physical research in the geosciences [DOE/ER-0030] 25 p0137 N80-13382 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] 25 p0138 N80-13607 Systems engineering for power, program report
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  D  D  D  D  D  D  D  D  D  D  D  D	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/EE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GFC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/EBA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12582 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0134 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [TID-28849] 25 p0135 N80-13285 Underground coal conversion. Program description [DOE/ET-0100] 25 p0136 N80-13293 Summaries of physical research in the geosciences [DOE/ER-0030] 25 p0137 N80-13582 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] 25 p0138 N80-13607
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  D  D  DAYTON UBIV., OHIO.  Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  Proposed research planning format for the Environmental Assessment Department [EPRI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF ENERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273 Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONF-790520-7] 25 p0134 N80-13274 The 50,000 mile methanol/gasoline blend fleet study [CONF-790520-6] 25 p0134 N80-13275 Ambient temperature, fuel economy, emissions, and trip length [PB-298847/5] 25 p0166 N80-14976  DEPARTMENT OF ENERGY, MORGANTOWN, W. VA. Fluidized-bed combustion of high sulfur coals [METC/RI-79/4] 25 p0093 N80-10386  DEPARTMENT OF ENERGY, OAK RIDGE, TENN. Energy information data base. Corporate author entries [DOE/TIC-4585-RI-SUPPL-1] 25 p0097 N80-10617	number two fuel oil and propane [DOE/FIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/FIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/ERA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ERA-0048] 25 p0126 N80-12582 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0136 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [TID-28849] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [DOE/ET-0100] 25 p0136 N80-13285 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/ER-0030] 25 p0138 N80-13582 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/ET-0102/2-REV] 25 p0138 N80-13607 Systems engineering for power, program report [DOE/ET-0012/2-REV] 25 p0140 N80-13637 Nulti-year plan for thermal and mechanical energy storage program
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS. Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  D  D  D  D  D  D  D  D  D  D  D  D	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GFC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/EEA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12582 Environmental analysis of synthetic liquid fuels [DOE/EF-0044] 25 p0134 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [DOE/ET-0100] 25 p0135 N80-13286 Underground coal conversion. Program description [DOE/ET-0100] 25 p0137 N80-13286 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] 25 p0138 N80-13607 Systems engineering for power, program report [DOE/ET-0012/2-REV] 25 p0140 N80-13637 Multi-year plan for thermal and mechanical energy storage program [DOE/ET-0109] 25 p0142 N80-13658
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAREFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAE [UCRL-13984] 25 p0103 N80-10689  D  D  D  DAYTON UNIV., OHIO. Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  Proposed research planning format for the Environmental Assessment Department [EPRI-EA-1018] 25 p0103 N80-10692  DEPARTMENT OF EMERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONF-790520-4] 25 p0134 N80-13273 Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONF-790520-7] 25 p0134 N80-13274 The 50,000 mile methanol/gasoline blend fleet study [CONF-790520-6] 25 p0134 N80-13275 Ambient temperature, fuel economy, emissions, and trip length [PB-298847/5] 25 p0166 N80-14976  DEPARTMENT OF EMERGY, MORGANTOWN, W. VA. Fluidized-bed combustion of high sulfur coals [METC/RI-79/4] 25 p0093 N80-10386  DEPARTMENT OF EMERGY, OAK RIDGE, TENN. Energy information data base. Corporate author entries [DOF/TIC-4585-E1-SUPPL-1] 25 p0097 N80-10617 Energy information data base. February 1976 - March 1979	number two fuel oil and propane [DOE/FIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/FIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/ERA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ERA-0048] 25 p0126 N80-12582 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0136 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [TID-28849] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [DOE/ET-0100] 25 p0136 N80-13285 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/ER-0030] 25 p0138 N80-13582 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/ER-0012/2-REV] 25 p0138 N80-13607 Systems engineering for power, program report [DOE/ET-0112/2-REV] 25 p0140 N80-13637 Nulti-year plan for thermal and mechanical energy storage program
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WAKEFIELD, MASS. Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  D  D  D  D  D  D  D  D  D  D  D  D	number two fuel oil and propane [DOE/EIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GFC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/EEA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ET-0072] 25 p0126 N80-12582 Environmental analysis of synthetic liquid fuels [DOE/EY-0044] 25 p0134 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [DOE/ET-0100] 25 p0135 N80-13285 Underground coal conversion. Program description [DOE/ET-0100] 25 p0137 N80-13285 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/EIA-0184/5] 25 p0138 N80-13607 Systems engineering for power, program report [DOE/EIA-0114/5] 25 p0140 N80-13637 Multi-year plan for thermal and mechanical energy storage program [DOE/EIT-0017/2-BEV] 25 p0142 N80-13658 Solar thermal power systems [DOE/EIT-018/TI] 25 p0143 N80-13662 Photovoltaic systems. Program summary
Committee on Science and Technology 1959 - 1979 [GPO-35-120] 25 p0181 N80-15994  COMPUTER GENETICS CORP., WARRFIELD, MASS.  Remote sensing of LNG spill vapor dispersion using Raman LIDAR [UCRL-13984] 25 p0103 N80-10689  D  D  D  DAYTON UBIV., OHIO.  Analysis of remote site energy storage and generation systems [AD-A074869] 25 p0156 N80-14504  Proposed research planning format for the Environmental Assessment Department [EPRI-EA-1018] 25 p0103 N80-10692  DEPARTHENT OF ENERGY, BARTLESVILLE, OKLA. Physical properties of gasoline/alcohol automotive fuels [CONP-790520-4] 25 p0134 N80-13273  Driving cycle comparisons of energy economies and emissions from an alcohol and gasoline fueled vehicle [CONP-790520-7] 25 p0134 N80-13274  The 50,000 mile methanol/gasoline blend fleet study [CONP-790520-6] 25 p0134 N80-13275  Ambient temperature, fuel economy, emissions, and trip length [PB-298847/5] 25 p0166 N80-14976  DEPARTHENT OF ENERGY, MORGAHTOWN, W. VA. Fluidized-bed combustion of high sulfur coals [METC/RI-79/4] 25 p0093 N80-10386  DEPARTHENT OF ENERGY, OAK RIDGE, TENN.  Energy information data base. Corporate author entries [DDE/TIC-4585-RI-SUPPL-1] 25 p0097 N80-10617 Energy information data base. Pebruary 1976 — March 1979 [DDE/TIC-4579-RIO-SUPPL-4] 25 p0128 N80-12601	number two fuel oil and propane [DOE/FIA-0102/50] 25 p0113 N80-11601 International coal technology summary document [DOE/FE-0010] 25 p0115 N80-11621 Identification of a methodology for projecting short-term crude petroleum production in the United States [DOE/EIA-0103/14] 25 p0122 N80-12542 Inventory of advanced energy technologies and energy conservation research and development, 1976-1978, volume 1 [GPC-41-481] 25 p0122 N80-12550 Standby conservation plan no. 2: Emergency building temperature restrictions. Authorities: Need, rationale, operation [DOE/ERA-0048] 25 p0126 N80-12582 United States magnetic fusion energy program [DOE/ERA-0048] 25 p0126 N80-12582 Environmental analysis of synthetic liquid fuels [DOE/EV-0044] 25 p0136 N80-13279 Commercialization strategy report for coal liquefaction [TID-28846] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [TID-28849] 25 p0135 N80-13285 Commercialization task force for high Btu gasification [DOE/EV-0003] 25 p0137 N80-13285 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/ER-0030] 25 p0138 N80-13582 Current U. S. petroleum situation and short-term supply/demand outlook [DOE/ER-0030] 25 p0138 N80-13607 Systems engineering for power, program report [DOE/EV-0012/2-REV] 25 p0140 N80-13637 Multi-year plan for thermal and mechanical energy storage program [DOE/EV-0078/T1] 25 p0143 N80-13658 Solar thermal power systems [DCE/EV-0078/T1] 25 p0143 N80-13662

Environmental development plan:	Wind energy
conversion [DOF/EDP-0030]	25 -0107 800 12701
Thin film problems and research	25 p0147 N80-13701 in energy systems
[CONF-761168-SUMM]	25 p0147 N80-13705
Liquefied gaseous fuels safety	
control assessment program	
[ DO E/EV-0036 ]	25 p0151 N80-14266
Electric and hybrid vehicles:	Commercialization
phase 3 planning	25 -0454 200 4220
[DOE/ERD-0004] Commercialization strategy repo	25 p0151 N80-14349
hydrothermal electric and dir	
application	CCC Medi
[TID-28840-DRAFT]	25 p0157 N80-14508
Report to the Congress on the c	coordination of
Federal energy conservation p	rograms involving
state and local governments	
[DOE/TIC-10127]	25 p0157 x80-14515
Commercialization strategy repo	rt for energy
from urban wastes [TID-28852-DRAFT]	25 p0159 N90-10521
Geothermal energy: Program sum	25 p0158 N80-14521
[DOE/ET-0101]	25 p0161 N80-14542
Commercialization strategy repo	rt for small wind
systems	
[TID-28844-DRAFT]	25 p0161 N80-14543
Commercialization strategy repo	rt for large wind
systems	
[TID-28843-DRAFT]	25 p0161 N80-14544
Commercialization strategy repo water heating	rt for solar
[TID-28856-DRAFT]	25 p0161 N80-14545
Photovoltaic incentives options	
[HCP/CS-0023]	25 p0162 N80-14561
Energy Policy and Conservation	
94-163) as amended by the Nat	ional Energy
Conservation Policy Act (Publ	
Title 10: Energy. Chapter 2	
	y Conservation.
Part 430: Energy conservatio consumer products	n program for
[DOE/CS-0056]	25 p0163 N80-14567
Nuclear power program informati	
Nuclear power program informati Update, March - April 1979	
<pre>Update, March - April 1979 [DOE/TIC-10119]</pre>	on and data: 25 p0166 N80-14894
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo	on and data: 25 p0166 N80-14894
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles	on and data: 25 p0166 N80-14894 rt for electric
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT]	on and data: 25 p0166 N80-14894
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026]	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway webicle
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (AFUP)
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093]	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5]	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-20858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle program (AFUP)  25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT]	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972 25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [COMP-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Police	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972 25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012]	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N8C-15287 cg review 25 p0169 N80-15290
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/21	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/21	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polit [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4]	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N8C-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979.
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15297 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979.
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/1]	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUB) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979  25 p0174 N80-15593
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polit [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/1] National program plan for passi	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUB) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979  25 p0174 N80-15593
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/1] National program plan for passisolar heating and cooling	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979  25 p0174 N80-15593 25 p0174 N80-15594 ve and hybrid
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/1] National program plan for passisolar heating and cooling [DOE/CS-0089]	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0174 N80-15592 short term: 1979  25 p0174 N80-15594 ve and hybrid  25 p0174 N80-15598
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/1] National program plan for passisolar heating and cooling [DOE/CS-0089] Nuclear strategy of the Department [DOE/EF-0025/D]	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979  25 p0174 N80-15593 ve and hybrid  25 p0174 N80-15598 ent of Energy 25 p0175 N80-15598 ent of Energy 25 p0175 N80-15605
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polit [DOE/EP-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/1] National program plan for passisolar heating and cooling [DOE/CS-0089] Nuclear strategy of the Departm [DOE/ER-0025/D] All-union scientific and technic	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0174 N80-15592 short term: 1979  25 p0174 N80-15594 ve and hybrid  25 p0174 N80-15598 ent of Energy 25 p0175 N80-15508 ent of Energy
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polit [DOE/EP-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/1] National program plan for passisolar heating and cooling [DOE/CS-0089] Nuclear strategy of the Departm [DOE/ER-0025/D] All-union scientific and technic	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0174 N80-15592 short term: 1979  25 p0174 N80-15594 ve and hybrid  25 p0174 N80-15598 ent of Energy 25 p0175 N80-15508 ent of Energy
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [COMP-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/1] National program plan for passisolar heating and cooling [DOE/CS-0089] Nuclear strategy of the Department [DOE/ER-0025/D] All-union scientific and technic use of the earth's heat for tielectric power - summary of re-	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979  25 p0174 N80-15593  25 p0174 N80-15594 ve and hybrid  25 p0175 N80-15605 cal conference on he production of
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/FE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/1] National program plan for passisolar heating and cooling [DOE/CS-0089] Nuclear strategy of the Departmed [DOE/CS-0089] Nuclear strategy of the Departmed [DOE/CS-0089] All-union scientific and techniques of the earth's heat for the electric power - summary of recommendation of the content of	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979  25 p0174 N80-15593 ve and hybrid  25 p0174 N80-15598 ent of Energy 25 p0175 N80-15605 cal conference on he production of eports 25 p0176 N80-15615
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polit [DOE/EP-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/1] National program plan for passisolar heating and cooling [DOE/CS-0089] Nuclear strategy of the Departm [DOE/ER-0025/D] All-union scientific and technicuse of the earth's heat for the electric power - summary of re [CONF-751270-SUMM] Environmental development plan	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979  25 p0174 N80-15593 ve and hybrid  25 p0174 N80-15598 ent of Energy 25 p0175 N80-15605 cal conference on he production of eports 25 p0176 N80-15615
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/1] National program plan for passisolar heating and cooling [DOE/CS-0089] Nuclear strategy of the Departmed [DOE/ER-0025/D] All-union scientific and techniques of the earth's heat for the electric power - summary of re[CONF-751270-SUMM] Environmental development plan energy conversion	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (AFUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0168 N80-15287 cy Review 25 p01718 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979  25 p0174 N80-15593  25 p0174 N80-15598 ent of Energy 25 p0175 N80-15605 cal conference on he production of eports 25 p0176 N80-15615 ocean thermal
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/FPE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/4] International energy and cooling [DOE/EIA-0184/1] National program plan for passisolar heating and cooling [DOE/ES-0089] Nuclear strategy of the Departme [DOE/ER-0025/D] All-union scientific and technicuse of the earth's heat for the electric power - summary of recomply conversion [DOE/EDP-0034] Energy conversion [DOE/EDP-0034]	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979  25 p0174 N80-15593  25 p0174 N80-15593 ve and hybrid  25 p0175 N80-15605 cal conference on he production of eports 25 p0176 N80-15615 ocean thermal
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/4] International program plan for passisolar heating and cooling [DOE/CS-0089] Nuclear strategy of the Departme [DOE/ER-0025/D] All-union scientific and technic use of the earth's heat for the electric power - summary of reconstruction [DOE/EDP-0034] Environmental development plan energy conversion [DOE/EDP-0034] Federal Energy Data System (FED: summary update	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979  25 p0174 N80-15593  25 p0174 N80-15593 ve and hybrid  25 p0175 N80-15605 cal conference on he production of eports 25 p0176 N80-15615 ocean thermal
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/EP-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/1] National program plan for passisolar heating and cooling [DOE/CS-0089] Nuclear strategy of the Departme [DOE/ER-0025/D] All-union scientific and technicus of the earth's heat for the electric power - summary of recompleted of the content of the energy conversion [DOE/EDP-0034] Federal Energy Data System (FED: summary update [DOE/EIA-0192]	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979  25 p0174 N80-15593  25 p0174 N80-15594 ve and hybrid  25 p0175 N80-15605 cal conference on he production of eproduction of eproduction of eproduction of eproduction 25 p0176 N80-15615 ocean thermal  25 p0176 N80-15621 S) statistical
Update, March - April 1979 [DOE/TIC-10119] Commercialization strategy repo and hybrid vehicles [TID-28858-DRAFT] Analysis of hydrogen in solids [DOE/ER-0026] Project planning document: Hig Alternative Fuels Utilization [DOE/CS-0093] Ethanol/gasoline blends as auto [CONF-790520-5] Commercialization strategy repo of natural gas from unconvent [TID-28848-DRAFT] Report of the Alcohol Fuel Polic [DOE/PE-0012] The 1985, 1990 and 1995 midterm model results under three sce Use Act regulations [DOE/EIA-0182/2] Energy supply and demand in the and 1980 [DOE/EIA-0184/4] International energy assessment [DOE/EIA-0184/4] International program plan for passisolar heating and cooling [DOE/CS-0089] Nuclear strategy of the Departme [DOE/ER-0025/D] All-union scientific and technic use of the earth's heat for the electric power - summary of reconstruction [DOE/EDP-0034] Environmental development plan energy conversion [DOE/EDP-0034] Federal Energy Data System (FED: summary update	on and data:  25 p0166 N80-14894 rt for electric  25 p0166 N80-14972  25 p0167 N80-15220 hway vehicle Program (APUP) 25 p0168 N80-15279 motive fuels 25 p0168 N80-15280 rt for recovery ional sources 25 p0168 N80-15287 cy Review 25 p0169 N80-15290 energy market narios of Fuel  25 p0173 N80-15592 short term: 1979  25 p0174 N80-15593  25 p0174 N80-15594 ve and hybrid  25 p0175 N80-15605 cal conference on he production of eproduction of eproduction of eproduction of eproduction 25 p0176 N80-15615 ocean thermal  25 p0176 N80-15621 S) statistical

```
Federal leasing and outer continental shelf
      energy production goals
[DOE/BA-0037] 25 p0178 N80-156
Environmental development plan: Electric Energy
                                                         25 p0178 N80-15640
     | LUUK/PDP-0038] 25 p0179 N80-15669

Pission energy program of the U.S. Department of

Energy, FY 1980

[D0E/ET-0089] 25 p0199 P01
         Systems
      [DOE/ET-0089] 25 p0180 N80-15893
Report to Congress on the economic impact of
        energy actions as required by public law 93-275, section 18-d [DOE/PE-0007] 25 p0181 N
                                                         25 p0181 N80-15993
 DRAVO CORP., PITTSBURGH, PA.
     Management of coal preparation fine wastes without disposal ponds
         [PB-299100/8]
                                                         25 p0180 N80-15691
 DREXEL UNIV., PHILADELPHIA, PA.
     Are large concentration of atomic H storable in
         tritium-impregnated solid in H2 below 0.10 K
25 p0072 A80-18728
     Optimal control of distributed parameter systems
         for solar thermal applications
                                                         25 p0095 N80-10593
      Double-exposure collector system
        [TID-28964]
                                                        25 p0127 N80-12593
DU PONT DE NEMOURS (E. I.) AND CO., ATREN, S. C.
US program for the immobilization of high-level
        nuclear wastes
[DP-MS-79-2]
                                                         25 p0149 N80-13917
DYNATECH CORP., CAMBRIDGE, MASS.
Cost analysis of aquatic biomass systems
[HCP/ET/4000-78/1] 25 p0120
                                                         25 p0120 N80-12202
 ECONOMICS, STATISTICS AND COOPERATIVES SERVICE.
WASHINGTON, D. C.
Growing energy: Land for biomass farms
[PB-296650/5] 25 p0094
                                                        25 p0094 N80-10400
 EDGERTON, GERMESHAUSEN AND GRIER, INC., IDAHO
FALLS, IDAHO.
INEL geothermal environmental program
       [TREE-1340]
                                                        25 p0112 N80-11595
 EHRENKRANTZ GROUP, NEW YORK, N. Y.
     Architectural concerns in solar system design
        and installation
        [SOLAR/0801-79-01]
                                                        25 p0129 N80-12607
EIC, INC., NEWTON, MASS.
     Corrosion protection of solar-collector heat
        exchangers with electrochemically deposited
        films
        [C00-4297-1]
                                                        25 p0171 N80-15569
ELECTRIC POWER RESEARCH INST., PALO ALTO, CALIF.
Biofuels: A survey
[EPRI-ER-746-SR] 25 p0107 N80-
     [EPRI-ER-746-SR] 25 p0107 N80-11250
Solar heating and cooling research projects: A
        summary
[EPRI-ER-1095-SR]
                                                        25 p0147 N80-13703
     Electric utility solar energy activities, 1978
[EPRI-ER-966-SE] 25 p0162 NaO-14560
     [EPRI-ER-966-SR] 25 p0162 N80-14
Feasibility study for enhancing the development
of fusion energy
[EPRI-ER-778-SR] 25 p0178 N80-15
                                                        25 p0178 N80-15642
ELLIOTT CO., JEANNETTE, PA.

Preliminary design of axial flow hydrocarbon
turbine/generator set for geothermal
        applications
       FEPRI-ER-5131
                                                        25 p0160 N80-14536
EPRI-ER-513 J 25 pulsu N80-14
ENERGY RESEARCH CORP., DANBURY, CONN.
Technology development for phosphoric acid fuel
cell powerplant, phase 2
[NASA-CR-159705] 25 p0096 N80-10
ENERGY TECHNOLOGY ENGINEERING CENTER, CANOGA PARK,
OTEC-1 test conductor program
[CONF-780550-9] 25 p0163 N80-1
ENERGY UTILIZATION SYSTEMS, INC., PITTSBURGH, PA.
Research and development of a heat and pump
                                                        25 p0163 N80-14563
water heater, volume 1

[ORNL/SUB-7321-1] 25 p0130 N80-12613

ENGELHARD MINERALS AND CHEMICALS CORP., EDISON, N. J.
Design and development of a 30 watt solid
polymer electrolyte fuel cell power source
fueled with calcium hydride

[AD-A071157] 25 p0130 N80-13625
```

25 p0139 N80-13625

[AD-A071157]

```
GENERAL ELECTRIC CO., PAIRFIELD, CONN.

Solar power satellite system definition study.

Volume 1: Executive summary

[NASA-CR-160442] 25 p0167 N80-1519

GENERAL ELECTRIC CO., PHILADELPHIA, PA.

Executive summary: Mod-1 wind turbine generator analysis and design report

[NASA-CR-159497] 25 p0169 N80-1159

Sintered silicon nitrode recuperator fabrication [NASA-CR-159706] 25 p0167 N80-15906
BHVIRONMENTAL LAW INST., WASHINGTON, D. C.
Solar access law. Protecting access to sunlight
for solar energy systems
                                                                                                                                                                                                                                25 p0167 N80-15195
             [PB-296532/5]
                                                                                   25 p0117 N80-11633
ENVIRONMENTAL MONITORING AND SUPPORT LAB., LAS
 VECAS, NEV.
Surface water quality parameters for monitoring
            oil shale development [PB-297984/7]
                                                                                                                                                                                                                                 25 p0109 N80-11558
                                                                                   25 p0153 N80-14470
Western energy sulfate/nitrate monitoring network [PB-299238/6] 25 p0180 N80-15685 ENVIRONMENTAL PROTECTION AGENCY, ANN ARBOR, MICH. Ranking tires using a transient speed-time cycle [PB-297756/9] 25 p0108 N80-11487
                                                                                                                                              [NASA-CR-159706] 25 p0167 N80-15263
GENERAL RIBCTRIC CO., SANTA BARBARA, CALIF.
Large-scale annual-cycle thermal energy storage
                                                                                                                                                          in aquifers
                                                                                                                                               [CONF-790515-3] 25 p0145 N80-1:
GENERAL BLECTRIC CO., SCHENECTADY, N. I.
Small solar thermal electric power plants with
                                                                                                                                                                                                                                 25 p0145 N80-13686
        Effects of inspection and maintenance programs
        on fuel economy
[PB-297583/7]
Investigation of the effects of the installation
of an oxidation catalyst on a diesel powered
                                                                                                                                                          early commercial potential
[ASME PAPER 79-WA/SOL-9]
                                                                                                                                                                                                                                 25 p0069 A80-18586
                                                                                                                                                      The first small power system experiment, Phase
1: Engineering experiment no. 1
[NASA-CR-162417] 25 p0095 N80-10596
             vehicle
vehicle
[PB-299928/2]
ESCHER TECHNOLOGY ASSOCIATES, ST. JOHNS, MICE.
Survey of liquid hydrogen container techniques
for highway vehicle fuel system applications
[HCP/M2752-01]
25 p0092 N80-10383
                                                                                                                                                      Regenerative flywheel energy storage system
[UCRL-13982] 25 p0112 N80-11594
                                                                                                                                                      [UCRL-13982] 25 p0112 N80-11:
Commercial application of molten carbonate fuel
                                                                                                                                                          cell system [CONF-790213-4]
                                                                                                                                                                                                                                  25 p0123 N80-12557
                                                                                                                                                      Requirements assessment of wind power plants in electric utility systems. Volume 3: Appending [EPRI-ER-978-VOL-3] 25 p0139 N80-13
                                                                                                                                                                                                                                 ume 3: Appendixes
25 p0139 N80-13628
FLETCHER (A. L.) AND ASSOCIATES, GAINESVILLE, FLA.
Analysis of financial programs for energy
conservation: Market simulation (penetration)
                                                                                                                                               GEORGIA INST. OF TECH., ATLANTA.

Heat pump centered integrated community energy
systems: System development
             model
             [ HCP/M8662-1]
                                                                                                                                                          [ANL-ICES-TM-28]
                                                                                                                                                                                                                                 25 p0111 N80-11574
                                                                                    25 p0114 N80-11606
 PLORIDA UNIV., GAINESVILLE.

Distribution and movement of electrolyte in fuel cells and batteries
                                                                                                                                               Southeastern forum on appropriate technology
[PB-298796/4] 25 p0118 N80-11965
GESELLSCHAFT FUER WIRTSCHAFTLICHE BAUTECHNIK
                                                                                    25 p0138 N80-13619
                                                                                                                                                M.B.H., MUNICH (WEST GERMANY).
                                                                                                                                                      Investigation of the applicability of technical
systems utilizing solar energy for the heat
supply of buildings
 PLUOR ENGINEERS AND CONSTRUCTORS, INC., IRVINE,
  CALIF.
 Heber geothermal demonstration power plant
[EPRI-ER-863] 25 p0114 N80-11607
FORD AEROSPACE AND COMMUNICATIONS CORP., NEWFORT
                                                                                                                                              [BMTT-FE-T-78-48]
GIBBS AND COX, INC., WASHINGTON, D. C.
Ocean Thermal Energy Conversion (OTEC) platform configuration and integration, executive summary
 BEACH, CALIF.
Optimization of a point-focusing, distributed receiver solar thermal electric system
[ASME PAPER 79-WA/SOL-11] 25 p0065 A80-
                                                                                                                                               [DOE/ET-4064-1]
GILBERT/COMMONWEALTH, READING, PA.
Survey of MHD plant applications
 [ASMP PAPER 79-WA/SOL-11] 25 p0065 A80-18553
FOSTER WHEELER CORP., LIVINGSTON, N.J.
Interim structural design standard for solar
                                                                                                                                                                                                                                 25 p0015 A80-11972
Interim structural design standard for solar energy applications, phases 1 and 2
[SAND-79-8183] 25 p0146 N80-13698

FRANKLIN INST. RESEARCH LABS., PHILADELPHIA, PA.

The great adventure: A report on the 10 regional public hearings on solar energy for the domestic policy review
[HCP/U6354-01] 25 p0124 N80-12567

FRANKLIN PIRGCE LAW CENTER, CONCORD, N. H.

Pundamental economic issues in the develonment
                                                                                                                                               GILBERT ASSOCIATES, INC., READING, PA.

Research and evaluation of biomass
resources/conversion/utilization systems
(market/experimental analysis for development
                                                                                                                                               of a data base for a fuels from biomass model) [COO-5022-5] 25 p0172 N80-15576 GINER, INC., WALTHAM, MASS. Study of corrosion and its control in aluminum
         Fundamental economic issues in the development
                                                                                                                                                          solar collectors
                                                                                                                                                [COO-2934-7] 25 p
GRUHHAN AEROSPACE CORP., BETHPAGE, N.Y.
             of small-scale hydro [DOE/RA-23-216.00.0-02]
                                                                                                                                                                                                                                  25 p0129 N80-12609
                                                                                    25 p0143 N80-13667
                                                                                                                                                      The jet membrane process for uranium separation and enrichment
[RE-586] 25 p0091 N80-10.
                                                            G
 GARY OPERATING CO., ENGLEWOOD, COLO.

Bell Creek residual oil saturation technology test

[BETC-2180-4] 25 p0108 N80-11546

GENERAL ACCOUNTING OFFICE, WASHINGTON, D. C.

Energy saving strategies for federal procurement

[PB-296969/9] 25 p0103 N80-10678

Natural gas reserves estimates: A good federal

program emerging, but problems and

duplications persist

[PB-296628/2] 25 p0103 N80-10679

The solar in Federal buildings demonstration
                                                                                                                                                                                                                                 25 p0091 N80-10329
                                                                                                                                                      Minimum cost transmitter-receiver antenna pairs
[RM-690] 25 p0094 N80-10414
Solar power satellite system definition study.
                                                                                                                                                          Volume 1: Executive summary [NASA-CR-160442]
                                                                                                                                                                                                                                 25 p0167 N80-15195
                                                                                                                                               [NASA-CR-160442] 25 p0167 N80-15195
GTE SYLVANIA, INC., NEEDHAM HEIGHTS, MASS.
Lithium inorganic electrolyte battery development
[AD-A073858] 25 p0157 N80-14505
GULP RESEARCH AND DEVELOPMENT CO., PITTSBURGE, PA.
Research and development of an advanced process
for conversion of coal to synthetic gasoline
and other distillate motor fuels
[FE-1800-33] 25 p0135 N80-13287
         The solar in Federal buildings demonstration
             program
              PB-298535/6]
                                                                                    25 p0151 N80-14279
         Commercializing solar heating: A national
                                                                                                                                                      Research and development of an advanced process
             strategy needed [PB-297882/3]
                                                                                                                                                          for conversion of coal to synthetic gasoline and other distillate motor fuels
                                                                                    25 p0164 N80-14575
                                                                                                                                               and other distillate motor fuels
[PE-1800-30] 25 p0135 N80-13291
GULF UNIVERSITIES RESEARCH CONSORTIUM, BELLATRE, TEX.
Naturally occuring carbon dioxide sources in the
United States. A geologic appraisal and
economic sensitivity study of drilling and
producing carbon dioxide for use in enhanced
         rusion: A possible option for solving long-term energy problems
              [PB-300692/1]
                                                                                    25 p0181 N80-15946
  GENERAL ELECTRIC CO., CINCINNATI, OHIO.

A conceptual design study on the application of liquid metal heat transfer technology to the
             solar thermal power plant [NASA-CR-162544]
                                                                                                                                                           oil recovery
                                                                                     25 p0154 N80-14484
                                                                                                                                                           FE-2025-381
                                                                                                                                                                                                                                  25 p0130 N80-12624
```

```
Constraints on energy conservation
[ORAU/IEA-78-17(M)] 25 p0127 N80-12594
Fundamental aspects of energy conservation policy
[ORAU/IVA-78-20(M)] 25 p0127 N80-12595
[ORAU/IVA-78-20(M)] 25 p0127 N80-12595
 GUTEHOFFHUNGSHUETTE STERKRADE A.G. OBERHAUSEN (WEST
                                                                                                              INSTITUTE FOR ENERGY ANALYSIS, OAK BIDGE, TENB.
 GERMANY) .
      Electric power generation and LNG evaporation with the aid of gas turbines within a
                                                                                                              [ORAU/IEA-78-20(M)] 25 p0127 N80-1259
INSTITUTE FOR LOCAL SELF RELIANCE, WASHINGTON, D. C.
          closed-cycle process
[AED-CONF-78-155-010]
                                                                25 p0121 N80-12291
                                                                                                                   The great adventure: A report on the 10 regional public hearings on solar energy for the domestic policy review
 HAMPORD ENGINEERING DEVELOPMENT LAB., BICHLAND, WASH.
Materials compatibility in liquid sodium
[HEDL-SA-1559] 25 p0119 N80-12147
HAWAII STATE DEPT. OF PLANNING AND ECONOMIC
                                                                                                              INSTITUTE OF GAS TECHNOLOGY, CHICAGO, ILL.

Development of combustion data to utilize low
Btu gases as industrial process fuels.
 DEVELOPMENT, HOROLULU.

Solar/wind handbook for Hawaii: Technical applications for Hawaii, the Pacific Basin and
                                                                                                                       Project 61004 special report no. 4:
                                                                                                                       High-forward-momentum burner
                                                                                                                      FE-2489-331
                                                                                                                                                                             25 p0093 N80-10390
          sites worldwide with similar climatic conditions [UCRL-15053] 25 p0177 N80-15628
                                                                                                                    Development of gas turbine fuels and combustion:
[UCRL-15053]

HAWAII UNIV. AT HILO.

Solar/wind handbook for Hawaii: Technical applications for Hawaii, the Pacific Fasin and sites worldwide with similar climatic conditions [UCRL-15053]

HAWAII UNIV. AT MANOA, HONOLULU.

Solar/wind handbook for Hawaii: Technical applications for Hawaii, the Pacific Easin and sites worldwide with similar climatic conditions [UCRL-15053]

25 p0177 N80-15628
                                                                                                                       An overview
                                                                                                                   [CONF-790337-4] 25 p0093 N80-10391
Coal conversion systems: Technical data book
[HCF/T2286-01] 25 p0093 N80-10392
                                                                                                                       [CONF-790337-4]
                                                                                                                    Research and development of rapid hydrogenation
                                                                                                                       for coal conversion to synthetic motor fuels (riser cracking of coal)
                                                                                                                   [FE-2307-38] 25 p0100
Influence of electrolyte composition on
                                                                                                                                                                             25 p0106 N80-11249
                                                                                                                       electrode kinetics in the molten carbonate
                                                                                                                       fuel cell
 HIGGINS, AULD AND ASSOCIATES, ALBUQUERQUE, N. MEX.
Analysis of field test results for
single-axis-tracking solar collector foundations
                                                                                                                      [CONF-781063-2]
                                                                                                                                                                             25 p0115 N80-11615
                                                                                                                   Status of the PEATGAS process [CONF-781045-3]
                                                                                                                                                                             25 p0120 N80-12199
 [SAND-79-7023] 25 F
HITTHAN ASSOCIATES, INC., COLUMBIA, MD.
                                                               25 p0173 N80-15586
                                                                                                                    HYGAS process update
[CONF-781045-4]
                                                                                                                                                                             25 p0120 N80-12200
      Environmental assessment report: Solvent
Refined Coal (SRC) systems
                                                                                                                   Commercial application of molten carbonate fuel
                                                                                                                      cell system [CONF-790213-4]
 Refined Coal (SMC) systems
[PB-300383/7] 25 p0179 N80-15676

BONEIWELL, INC., HINNEAPOLIS, HINN.
Ocmulgee national monument visitor center solar
heating and cooling system design review data
[NASA-CR-150706] 25 p0096 N80-10601
                                                                                                                    [CONF-790213-4] 25 p0123 N80-12557
Research and development of rapid hydrogenation
                                                                                                                      for coal conversion to synthetic motor fuels
                                                                                                                      (riser cracking of coal)
[FE-2307-46]
                                                                                                                                                                             25 p0134 N80-13280
                                                                                                                   Preparation of a coal conversion systems technical data book, project 61003
       Solar heating and cooling systems design and
          development [NASA-CR-150618]
       [NASA-CR-150618] 25 p0096 N80-10602
Cost-effective control systems for solar heating
                                                                                                                   [FE-2286-32] 25 p0134
Development of the steam-iron process for
                                                                                                                                                                             25 p0134 N80-13281
       and cooling applications
[SAN-1592-1] 25 p0101 N80
Solar heating and cooling systems design and
                                                                                                                      hydrogen production, 9010
[PE-2435-32]
                                                                25 p0101 N80-10658
                                                                                                                                                                             25 p0150 N80-14258
                                                                                                                   High-BTU coal gasification processes
[ANL/CES/TE-79-2] 25 p
          development
                                                                                                                                                                             25 p0150 N80-14263
                                                                                                                   [ARL/LES/IE-79-2] 25 p0150 N80-14263
Puel cell option
[CONF-7809137-1] 25 p0158 N80-14523
LNG industry: An overview of projects and costs
[CONF-7811112-2] 25 p0168 N80-15278
Application analysis of solar total energy
          [NASA-CR-150873]
                                                                 25 p0109 N80-11560
 HUGHES RESPARCE LABS., MALIBU, CALIF.

Electron radiation damage of (AlGa) As-GaAs
          solar cells
          [ NA SA-CR-162425 ]
                                                                 25 p0110 N80-11564
                                                                                                                       systems to the residential sector.
                                                                                                                                                                                       Volume 4:
                                                                                                                      Market penetration [ALO-3787-4]
                                                                                                                   [ALO-3787-4] 25 p0174 N80-15597 Prediction of current distribution in a molten
IBM FEDERAL SYSTEMS DIV., HUBTSVILLE, ALA.
October 1978 environmental data for sites in the
National Solar Data Network
[SOLAR/0010-78-10] 25 p0126 N80-12585
IDAHO NATIONAL ENGINEERING LAB., IDAHO FALLS.
Overview of geothermal energy in the United States
[CONF-790530-1] 25 p0102 N80-10661
Analysis of binary thermodynamic cycles for a
moderately low-temperature geothermal resource
                                                                                                                      carbonate fuel cell [CONF-781063-1]
                                                                                                                                                                             25 p0175 N80-15613
                                                                                                              INTERNATIONAL BUSINESS MACHINES CORP., HUNTSVILLE,
                                                                                                                   Solar energy system performance evaluation:
A-Frame Industries, single family dwelling,
                                                                                                                       Kaneohe, Hawaii
                                                                                                              [SOLAR/1010-78/14] 25 p0101 N80-
INTERNATIONAL INSTITUTE FOR APPLIED SYSTEMS
ANALYSIS, LAXENBURG (AUSTRIA).
MEDEE 2: A model for long term energy demand
          moderately low-temperature geothermal resource [TREE-1365] 25 p0139 N80-13627
                                                                                                                                                                             25 p0101 N80-10659
 IEA COAL RESEARCH, LONDON (ENGLAND).
      Combustion of low grade coal
[ICIIS/IR-02] 25 p
Trace elements from coal combustion:
Atmospheric emissions
[ICIIS/IR-05] 25 p
                                                                                                                      evaluation
[IIASA-RR-78-17]
                                                                25 p0106 N80-11179
                                                                                                                                                                             25 p0109 N80-11554
                                                                                                                   Energy and climate: A review with emphasis on
                                                                25 p0106 N80-11180
                                                                                                                       global interactions
       Hot gas cleanup
[ICTIS/TR-03]
                                                                                                              INTERNATIONAL METEOROLOGICAL INST., STOCKHOLM
                                                                25 p0117 N80-11647
 Interaction in limited arrays of windmills:
                                                                                                                      Review of earlier results from a simple model
and a presentation of the capabilities of a
dynamic PBL model
           r coo-2893-10]
                                                                25 p0159 N80-14524
                                                                                                                      [DM-26]
                                                                                                                                                                             25 p0116 N80-11631
       Energy optimal use of waste paper [COO-2893-9]
                                                                                                              INTERNATIONAL NICKEL CO., INC., SUFFERN, N. I.

Evaluation of high chromium overplays to protect
less alloyed substrates from corrosion in a
                                                                 25 p0174 N80-15595
  INDUSTRIAL ENVIRONMENTAL RESEARCH LAB., RESEARCH
 TRIANGLE PARK, N. C.
Environmental assessment of the fluidized-bed
                                                                                                                       coal gasification atmosphere
                                                                                                              [PE-2621-3] 25 p0119 N80-121
INTERTECHNOLOGY CORP., WARRESTON, VA.
Photovoltaic power systems market identification
                                                                                                                                                                             25 p0119 N80-12163
          combustion of coal: Methodology and initial
```

25 p0165 N80-14595

and analysis [HCP/T4022-01]

25 p0162 N80-14559

results [PB-298473/0]

ONICS, INC., WATERTOWN, HASS. Anton permselective membrane	Biological transformation of light energy into methane using an anaerobic filter
[NASA-CR-159599] 25 p0122 N80-12551 OWA STATE UNIV. OF SCIENCE AND TECHNOLOGY, AMES. A regional approach to forecasting electric	25 p0133 N80-13267  KENTROL INTERNATIONAL, INC. PASADENA, CALIF.  A hip performance porous flat-plate solar
energy requirements for environmental assessments	collector 25 p0021 A80-12438
25 p0130 N80-12619	RENTUCKY UNIV., LEXINGTON.
Energy conservation via heat transfer enhancement [COO-4649-4] 25 p0147 x80-13707	Photovoltaic energy conversion in polymer films 25 p0154 N80-14477
Are large concentration of atomic H storable in	I
tritium-impregnated solid in H2 below 0.10 K 25 p0072 A80-18728	LEAGUE OF WOMEN VOTERS, WASHINGTON, D. C.
25 90072 200 10720	Energy conservation technology education program [HCP/M2165] 25 p0129 N80-12606
SET PROPULSION LAB., CALIFORNIA INST. OF TECH.,	LINCOLN LAB., MASS. INST. OF TECH., LEXINGTON.  Flywheel energy storage and conversion system
ASADENA.	for solar photovoltaic applications
A high performance porous flat-plate solar collector	[COO-4094-31] 25 p0100 N80-10639 Maximum power trackers for photovoltaic arrays
25 p0021 A80-12438 New technology and vehicle operation on roadways 25 p0037 A80-14702	[COO-4094-17] 25 p0116 N80-11627 Optimization of photovoltaic/thermal collector heat pump systems
Heat and electricity from the sun using	[COO-4577-7] 25 p0124 N80-12566
parabolic dish collector systems 25 p0037 A80-14706	Mead, Nebraska, 25-kW photovoltaic power system [COO-4094-10] 25 p0127 N80-12592
Cooling a radioisotope power source in the Space	Classification and technical review of dc-ac
Shuttle Orbiter	inverters for use in photovoltaic power systems
[ASME PAPER 79-ENAS-44] 25 p0039 A80-15267- Advanced solar thermal receiver technology	[COO-4094-25] 25 p0137 N80-13377  Evaluation of combined photovoltaic/thermal
[AIAA PAPER 80-0292] 25 p0063 A80-18297	collectors
Performance characteristics of point-focusing distributed-receiver solar Brayton systems	[COO-4577-8] 25 p0143 N80-13665 Cost analysis of packed beds for thermal energy
[AIAA PAPER 80-0293] 25 p0063 A80-18298	storage
Comparative study of solar optics for paraboloidal concentrators	[CAES-11] 25 p0145 N80-13687 Test plan for the Mead 25-kW Photovoltaic
[ASME PAPER 79-WA/SOL-8] 25 p0066 A80-18564	Flexible Test Facility, 1979
The effects of regional insolation differences	[COO-4094-53] 25 p0146 N80-13692
upon advanced solar thermal electric power plant performance and energy costs	Novel ceramic receiver for solar Brayton systems [COO-4878-3] 25 p0146 N80-13694
[ASME PAPER 79-WA/SOL-15] 25 p0069 A80-18588	Plywheel energy storage interface unit for
Deep space network feasibility study of terminating Southern California Edison	photovoltaic applications [COO-4094-44] 25 p0175 N80-15609
electrical service to Goldstone	Plywheel energy storage and conversion system
25 p0091 N80-10263 Molten salt pyrolysis of latex	for photovoltaic applications [COO-4094-48] 25 p0178 N80-15635
[NASA-CASE-NPO-14315-1] 25 p0092 N80-10361	Description of the MIT/Lincoln Laboratory
Start up system for hydrogen generator used with an internal combustion engine	photovoltaic systems test facility [COO-4094-41] 25 p0178 N80-15638
[NASA-CASE-NPO-13849-1] 25 p0092 N80-10374	LITTLE (ARTHUR D.), INC., CAMBRIDGE, MASS.
Continuous coal processing method and means [NASA-CASE-NPO-13758-2] 25 p0092 N80-10377	Solar Heating And Cooling Of Buildings (SHACCE) Commercialization report. Part B: Analysis
Borehole geological assessment	of market development, volume 2
[NASA-CASE-NPO-14231-1] 25 p0104 N80-10709 Electron radiation damage of (AlGa) As-GaAs	[DOE/TIC-10071] 25 p0128 N80-12603 Energy analysis of the basic materials utilized
solar cells	in electric power transmission systems
[NASA-CR-162425] 25 p0110 N80-11564 SAMICS: Input data preparation	[HCP/T5043-01] 25 p0157 N80-14510 Solar power satellite system definition study.
[NASA-CR-162421] 25 p0110 N80-11570	Volume 1: Executive summary
A survey of electric and hybrid vehicle simulation programs	[NASA-CB-160442] 25 p0167 N80-15195
[NASA-CR-162457] 25 p0118 N80-11954	Utilization of waste heat from Federal facilities [ORO-5523-T1] 25 p0173 N80-15590
Method for forming a solar array strip [NASA-CASE-NPO-13652-3] 25 p0153 N80-14474	LOS ALAMOS SCIPNTIFIC LAB., N. MEX.  The 50kA flux pump for the superconducting
Residential photovoltaic module and array	transmission line test bed
requirements study, appendices	[LA-6953-MS] 25 p0094 N80-10443
[NASA-CR-162529] 25 p0154 N80-14481 Application of field-modulated generator systems	Performance limits for liquid-metal heat pipes containing long adiabatic sections
to dispersed solar thermal electric generation	[LA-UR-79-1241] 25 p0095 N80-10472
[NASA-CR-162536] 25 p0155 N80-14488 solar thermal power systems advanced solar	Selected results from the technology assessment of solar energy program
thermal technology project, advanced	[LA-UR-79-950] 25 p0099 N80-10637
subsystems development [NASA-CR-162546] 25 p0155 N80-14491	Economic performance of passive solar heating: A preliminary analysis
Silicon materials outlook study for 1980-1985	[LA-UR-78-2861] 25 p0100 N80-10645
calendar years	Some dc superconducting cables
[NASA-CR-162541] 25 p0155 N80-14492 Proceedings of the DOE chemical/hydrogen energy	[LA-UR-79-1057] 25 p0107 N80-11348 Geothermal exploration methods and results:
contractor review systems	Inland states .
[CONF-771131] 25 p0164 N80-14572	[LA-UR-79-665] 25 p0108 N80-11543 Development of integrated thermionic circuits
· K	for geothermal high-temperature applications
KANSAS UNIV., LAWRENCE.	[LA-UR-79-723] 25 p0112 N80-11592 Night storage and backup generation with
Reduction of aerodynamic drag and fuel	electrochemical engines
consumption for tractor-trailer vehicles 25 p0046 A80-16948	[LA-UR-78-1149] 25 p0113 N80-11596
25 POV40 MOU-10940	

General-purpose heat source development. Phase	MCDONNELL-DOUGLAS ASTRONAUTICS CO., HUBTINGTON
1: Design requirements .	BEACH, CALIF.
[LA-7385-SR] 25 p0114 N80-11608 Energy savings for a solar heated and cooled	Solar central receiver prototype heliostat CDBL
building through adaptive optimal control	item B.D., volume 1 [SAN-1605/7-VOL-1] 25 p0146 N80-13700
[LA-UR-78-2986] 25 p0115 N80-11616	MCDONNELL-DOUGLAS ASTRONAUTICS CO., NEWPORT BEACH,
Energy development vs water quality in the upper	CALIF.
Colorado and upper Missouri River Basins [LA-7497-MS] 25 p0117 N80-11641	A solar thermal electric power plant for small communities
General-purpose heat source project space	[ASME PAPER 79-WA/SOL-7] 25 p0069 A80-18584
nuclear safety program and radioisotopic	MECHANICAL TECHNOLOGY, INC., LATHAM, N. Y.
terrestrial safety program [LA-7519-PR] 25 p0118 N80-11889	High COP heat pump system, phase 1, results [HCP/M5056-01] 25 p0110 N80-11573
LASL thermochemical hydrogen program status on	[HCP/M5056-01] 25 p0110 M80-11573 Assessment of the state of technology of
October 31, 1978	automotive Stirling engines
[LA-UR-78-2895] 25 p0120 M80-12197 Performance of Los Alamos solar Mobile/Modular	[NASA-CR-159631] 25 p0150 N80-13989
Home Unit no. 1	METAL PROPERTIES COUNCIL, INC., HEW YORK.  Program to discover materials suitable for
[LA-UR-78-2587] 25 p0126 N80-12577	service under hostile conditions obtaining in
Process design of the LASL bismuth sulfate thermochemical hydrogen cycle	equipment for the gasification of coal and
[LA-OR-79-1256] 25 p0129 N80-12605	other solid fuels [FE-1784-42] 25 p0106 N80-11248
Synfuel (hydrogen) production from fusion power	MIAMI UNIV., CORAL GABLES, FLA.
[LA-UR-79-1115] 25 p0136 N80-13296	Fifth Ocean Thermal Energy Conversion
Liquid hydrogen as an automotive fuel [LA-UR-79-621] 25 p0136 N80-13297	Conference, volume 2, sections 4-5 [CONF-780236-P2] 25 p0162 N80-14553
Energy policy and decision analysis; new	MICHIGAN UNIV., ANN ARBOR.
concepts and mechanisms	Survey and description of transport phenomena in
[LA-7909-MS] 25 p0140 M80-13634 Energy planning with solar and conservations:	packed-beds 25 p0121 N80-12340
Individual values and community choice	Dynamic response of a packed-bed energy storage
[LA-UR-79-1599] 25 p0142 N80-13653	system to a time varying inlet temperature
Hot dry rock geothermal energy development program [LA-7807-HDR] 25 p0144 N80-13673	25 p0121 N80-12341 Heat storage and thermal transfer aspects of the
Conceptual designs for two reject heat systems	dynamic behaviour of a packed bed
for a Brayton closed-cycle converter	25 p0121 N80-12342
[LA-7821-MS] 25 p0144 N80-13677 Critical review and assessment of environmental	MIDWEST RESEARCH INST., GOLDEN, COLO. Solar pond concepts: Old and new
and safety problems in hydrogen energy systems	[SERI/TP-35-208] 25 p0102 N80-10663
[LA-7820-PR] 25 p0145 N80-13690	Proceedings: Solar Thermal Power User Review
Baseline design of the thermoelectric reactor space power system	Panel Meeting [SERI/TP-69-221] 25 p0113 N80-11598
[LA-UR-79-1242] 25 p0149 N80-13906	Research overview of biological and chemical
Wave propagation in a dc superconducting cable.	conversion methods and identification of key
Part 1: Analysis [LA-UR-79-226] 25 p0151 N80-14346	research areas for SERI [SERI/TE-33-067] 25 p0115 N80-11617
Applications of fuel cells in transportation	Thermoelectric ocean thermal energy conversion
[LA-UR-79-628] 25 p0159 N80-14526	[SERI/TF-35-254] 25 p0124 N80-12564
Superconducting magnetic energy storage for electric power system dynamic stabilization	Systems Analysis and testing (SAT) program [SERI/PR-35-313] 25 p0124 N80-12565
[LA-UR-79-1220] 25 p0160 N80-14535	Direct labor requirements for select solar
Environmental options for coal use [LA-UR-79-1393] 25 p0165 N80-14584	energy technologies: A review and synthesis
New heat transfer geometry for hydride heat	[SERI/BR-53-045] 25 p0126 N80-12578 Wind resource analysis
engines and heat pumps	[SERI/TR-36-088] 25 p0132 N80-12710
[LA-7822] 25 p0169.N80-15289	Solar energy perspectives for public power
Decentralized solar photovoltaic energy systems [LA-7866-TASE] 25 p0171 N80-15565	[SERI/TF-35-300] 25 p0140 M80-13635 Review of the environment effects and benefits
Water use alternatives for Navajo energy	of selected solar energy technologies
production [LA-UR-79-1598] 25 p0178 N80-15643	[SERI/TP-53-114R] 25 p0141 N80-13649
[LA-UR-79-1598] 25 p0178 N80-15643 LOWELL UNIV., MASS.	Technology development needs for high temperature process heat
Economics of fusion driven symbiotic energy	[SERI/TR-35-047] 25 p0143 N80-13669
systems [CONF-790602-50] 25 p0128 N80-12602	Wind energy innovative systems
[COM1 750002 50] 25 poizo 800-12002	[SERI/PR-13-054] 25 p0144 N80-13674 Review of solar energy
M	[SERI/TH-54-066] 25 p0146 N80-13699
MARLATT AND ASSOCIATES, FORT COLLINS, COLO.	Rough cost estimates of solar thermal/coal or
Assessment of the applicability of the national	biomass-derived fuels [SERI/TF-35-279] 25 p0151 N80-14269
fire weather data library to wind energy	Application of diffusion research to solar
analyses [PNL-2538] 25 p0165 N80-14655	energy policy issues
MASSACHUSETTS INST. OF TECH., CAMBRIDGE.	[SERI/TR-51-194] 25 p0158 N80-14518 Implementation of state solar incentives:
Photoelectrochemical conversion of optical	Land-use planning to ensure solar access
energy to electricity and fuels [AD-A072861] 25 p0123 N80-12556	[SERI/TR-51-163] 25 p0158 N80-14519
[AD-A072861] 25 p0123 N80-12556 Wave power systems	Implementation of state solar incentives: A preliminary assessment
[PB-299851/6] 25 p0164 N80-14576	[SERI/TR-51-159] 25 p0158 N80-14520
MATHIECH, INC., PRINCETON, N. J.  Evaluation of the environmental effects of	Thermal energy storage for solar applications:
western surface coal mining, volume 1	An overview [SERI/TF-34-089] 25 p0161 N80-14546
[PB-300375/3] 25 p0179 N80-15681	A review of the economics of selected passive
MCALVERY AND ASSOCIATES, HOBOKEN, N. J. Impact of flywheel-transmissions on automobile	and hybrid systems [SERI/TP-61-144] 25 p0161 N80-14547
performance: A logical basis for evaluation	[SERI/TP-61-144] 25 p0161 N80-14547 Commercializing solar architecture
[UCRL-52758] 25 p0137 N80-13480	[SERI/TP-62-113] 25 p0161 N80-14548
	Insolation models, data and algorithms [SERI/TR-36-110] 25 p0165 N80-14617

RESPARCH CENTER, MOFFETT FIELD, CALIF.
A solar-heated water system for a photographic

25 p0041 A80-15750

processing laboratory

NATIONAL AEROBAUTICS AND SPACE ADMINISTRATION. SERAPH implementation plans NATIONAL ARRONAUTICS AND SPACE ADMINISTRATION.
PLIGHT RESBARCH CENTER, EDWARDS, CALIF.
Reduction of aerodynamic drag and fuel
consumption for tractor-trailer vehicles
25 p0046 A80-16948
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.
GODDARD SPACE FLIGHT CENTER, GREENBELT, MD.
Baltimore applications project
[NASA-TM-80577]
NATIONAL ARRONAUTICS AND SPACE ADMINISTRATION-12957 [SERI/RE-34-152] 25 p0172 N80-155 Alternate cycles applied to ocean thermal energy 25 p0172 N80-15570 conversion [SERI/TP-34-180] 25 p0172 N80-15571 Low temperature thermal energy storage: A state-of-the-art survey SERI/RE-54-164] 25 p0172 N80-15583 Role of the government in the development of solar energy
[SERI/TP-52-138] 25 p0178 N80 [NASA-TM-80577] 25 p0133 N80-12957 NATIONAL ARRONAUTICS AND SPACE ADMINISTRATION. 25 p0178 N80-15639 LANGLEY RESEARCH CENTER, LANGLEY STATION, VA. MIDWEST RESEARCH INST., KANSAS CITY, HO. The role of technology as air transportation faces the fuel situation Status of information for consumers of small wind energy systems [SERI/TP-51-158] 25 p0113 N80 25 p0037 A80-14700 Multirole cargo aircraft options and 25 p0113 N80-11602 MINNESOTA UNIV., MINNEAPOLIS. configurations [NASA-TH-80177] Melting in phase-change thermal storage media [COO-2993-1]
MISSISSIPPI STATE UNIV., STATE COLLEGE.
The analysis of sediment samples for hydrocarbons 25 p0105 N80-11053 An evaluation of the NASA Tech House, including An evaluation of the NASA Tech House, including live-in test results, volume 1

[NASA-TP-1564] 25 p0109 N80-11559

Preliminary test results of a flight management algorithm for fuel conservative descents in a time based metered traffic environment

[NASA-TH-80194] 25 p0150 N80-14114

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. [AD-A073822] 25 p0149 N80-13754 Visualization of natural convection in flat plate solar collectors 25 p0153 N80-14476 MITRE CORP., MCLEAN, VA.

Near term potential of wood as a fuel
[HCP/C4101] 25 p0093 N80-10389
Biomass-based alcohol fuels: The near-term LEWIS RESEARCH CENTER, CLEVELAND, OHIO.

The erosion/corrosion of small superalloy turbine rotors operating in the effluent of a potential for use with gasoline
[HCP/T4101-03] 25 p0093 N80-10
Environmental data for energy technology policy PFB coal combustor 25 p0093 N80-10393 Survey of MHD plant applications
25 p0015 A80-11972 analysis. Volume 1: Summary
[HCP/EV6119-1] 25 p0098 N80-10629
Health and environmental effects of coal Preparing aircraft propulsion for a new era in energy and the environment gasification and liquefaction technologies: A workshop summary and panel reports
[PB-297618/1] 25 p0104 N80-10701
Assessment of long term research needs for 25 p0053 A80-17737 Results of duct area ratio changes in the NASA Lewis H2-02 combustion MHD experiment [AIAA PAPER 80-0023] 25 p006 25 p0063 A80-18243 [AIAA PAPER 80-0025] 25 purple appear turbines [AIAA FAPER 80-0302] 25 p0064 A80-18303 Aircraft Energy Efficiency (ACEE) status report 25 p0091 N80-10206 coal-gasification technologies
[PB-297853/4] 25 p0107 N80-11255
The status of advanced propulsion systems for urban rail vehicles
[PB-297980/5] 25 p0133 N80-129
MOBIL RESEARCH AND DEVELOPMENT CORP., PRINCETON, N. Alternative jet aircraft fuels 25 p0091 N80-10209 NASA-Lewis closed-cycle magnetohydrodynamics Research guidance studies to assess gasoline plant analysis [NASA-TH-79249] from coal by methanol-to-gasoline and sasol-type Pischer-Tropsch technologies [FE-2447-13] 25 p0093 N80-10388 [MASA-TM-79249] 25 p0095 N80-10595
A photovoltaic power system in the remote
African village of Tangaye, Upper Volta
[NASA-TM-79318] 25 p0123 N80-12552
Results of duct area ratio changes in the NASA MONSANTO RESEARCH CORP., DAYTON, OHIO.

Energy storage for solar air conditioning applications utilizing a form-stable, high Lewis H2-02 combustion MBD experiment applications utilizing a form-stable, high density polyethylene pellet bed [MLH-2598(OP)] 25 p0113 N80-11603 NOTOROLA, INC., SCOTTSDALE, ARIZ.

The automated array assembly task of the low-cost silicon solar array project, phase 2 [NASA-CR-162029] 25 p0109 N80-11562 NOUND LAB., NETAMISSURG. ORIO. [NASA-TM-79308] 25 p0132 N80-12881
Modified aerospace reliability and quality
assurance method for wind turbines
[NASA-TM-79284] 25 p0137 N80-13490 Modified power law equations for vertical wind profiles [NASA-CR-162429] 25 p0109 N80-11562
MOUND LAB., MIAMISBURG, OHIO.
Studies of directly absorbing fluids for
mid-temperature solar thermal applications
[MLM-2625-OP] 25 p0160 N80-14540
Construction and initial operation of the
Miamisburg salt-gradient solar pond
[MLM-2626-OP] 25 p0161 N80-14541
Prolumbion of fuel resources and requirements [NASA-TH-79313] 25 p01: Low NO(x) heavy fuel combustor program [NASA-TH-79313] 25 p01: 25 p0138 N80-13623 25 p0138 N80-13624 [NASA-TH-79313] 25 p0138 N80-13624 Self-reconfiguring solar cell system [NASA-CASE-LEW-12586-1] 25 p0153 N80-14472 Status of the DOE/NASA critical gas turbine research and technology project [NASA-TM-79307] 25 p0155 N80-14493 Evaluation of fuel resources and requirements for the magnetic fusion energy program
[MLM-2419] 25 p0164 N80-14570 [NASA-TH-79307] 25 p0155 N80-14493
Effect of velocity overshoot on the performance of magnetohydrodynamic subsonic diffusers [NASA-TH-79305] 25 p0166 N80-14922
Impact of new instrumentation on advanced MUELLER ASSOCIATES, INC., BALTIMORE, ND.
Status of alcohol fuels utilization technology for stationary gas turbines turbine research turbine research
[NASA-TM-79301] 25 p0166 N80-15133
Analysis of GaAs and Si solar cell arrays for
earth orbital and orbit transfer missions
[NASA-TM-81383] 25 p0167 N80-15204 [HCP/M2098-03] 25 p0135 N80-13283 NATIONAL ACADEMY OF SCIENCES - NATIONAL RESEARCH Photovoltaic power system reliability COUNCIL, WASHINGTON, D. C. considerations Geothermal resources and technology in the United States [NASA-TM-79291] 25 p0170 N80-15422 [NASA-TH-19291]

Space solar cells: High efficiency and radiation damage
[NASA-TH-81387]

Candidate thermal energy storage technologies [PB-296623/2] 25 p0102 N80-10677 NATIONAL ABRONAUTICS AND SPACE ADMINISTRATION, 25 p0170 N80-15554 WASHINGTON, D. C. Fuel cell sesquicentennial Indidate thermal energy storage technology for solar industrial process heat applications function 25 p0171 N80-15560 [NASA-TH-31360] 25 p0137 N80-15560
NATIONAL AEBORAUTICS AND SPACE ADMINISTRATION.
MARSHALL SPACE FLIGHT CENTER, HUNTSVILLE, ALL.
Development of mining guidance and control systems
[NASA-TH-78226] 25 p0137 N80-13601 25 p0033 A80-13223 NATIONAL ABRONAUTICS AND SPACE ADMINISTRATION. AMES

temperature hydrothermal geothermal resources

25 p0172 N80-15582

in the southwestern United States [NMEI-10-1] 25 p

```
Coal-shale interface detection system
[NASA-CASE-MFS-23720-2] 25 p0
                                                                                                                     NATIONAL TECHNICAL INFORMATION SERVICE,
                                                                                                                     SPRINGFIELD, VA.
Hicrowave heating: Industrial applications.
                                                                   25 p0152 N80-14423
     Solar concentrator
     [NASA-CASE-MFS-23727-1] 25 p0153 N80-14473
Development and testing of the Junkeeper Control
Corporation integrated programmable electronic
                                                                                                                           Citations from the engineering data base
[NTIS/PS-79/0632/4] 25 p0102 N80-10674
Lead batteries, volume 2. Citations from the
          Corporation integrated programmer
controller and hydronics package
25 p0155 N80-14495
                                                                                                                           engineering index data base
[NTIS/PS-77/0634]

Geothermal energy. Part 1: Exploration, volume
3. Citations from the NTIS data base
     [NASA-TM-78244] 25 p0155
Development and testing of the Rho Sigma
                                                                                                                                                                                         25 p0103 N80-10681
          Incorporated microprocessor control subsystem
                                                                                                                           [NTIS/PS-79/0814/8] 25 p0148 N80-13
Geothermal energy. Part 2: Corrosion and
equipment, volume 3. Citations from the NTIS
         [NASA-TM-78246]
                                                                   25 p0156 N80-14496
                                                                                                                                                                                        25 p0148 N80-13715
     Development and testing of the Solar Control
Corporation modular controller and Solarstat
          subsystem
                                                                                                                               data base
                                                                    25.p0156 N80-14498
         [NASA-TH-78243]
                                                                                                                               [NTIS/PS-79/0815/5]
                                                                                                                                                                                         25 p0148 N80-13716
     Development, testing and certification of the sigma research, maxi-therm-S-101 thermosyphon
                                                                                                                           Geothermal energy. Part 3: Technology and general studies, volume 3. Citations from the
                                                                                                                              NTIS data base
[NTIS/PS-79/0816/3]
          heat exchanger
         [NASA-TM-78245]
                                                                    25 p0156 N80-14499
                                                                                                                                                                                         25 p0148 N80-13717
                                                                                                                          Geothermal energy, volume 3. Citations from the Engineering Index data base [NTIS/PS-79/0818/9] 25 p0148 N80-137
     Computer program for assessing the economic feasibility of solar energy for single family residences and light commercial applications
                                                                                                                                                                                         25 p0148 N80-13718
     [NASA-TM-78251] 25 p0156 N80-14501
Characterization of three types of silicon solar
                                                                                                                           Geothermal energy. Part 3: Technology and general studies, volume 4. Citations from the
         cells for SEPS deep space missions. Vo.
Current-voltage characteristics of OCLI
                                                                                                                     [NTIS/PS-79/0817/1] 25 p0148 N80-13719
Geothermal energy, volume 4. Citations from the
Engineering Index data base
[NTIS/PS-79/0819/7] 25 p0148 N80-13720
NAVAL CIVIL ENGINEERING LAB., PORT HUENEME, CALIF.
Comparative study of solar optics for
paraboloidal concentrators
[ASME PAPER 79-WA/SOL-8] 25 p0066 A80-18564
HAVAL RESEARCE LAB., WASHINGTON D
                                                                                 Volume 1:
                                                                                                                              NTIS data base
[NTIS/PS-79/0817/1]
          BSF/BSR 10 ohm-cm, and BSR 2 ohm-cm cells as a
function of temperature and intensity
[NASA-TM-78253] 25 p0171 N80-15562
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.
PASADENA OFFICE, CALIF.

Molten salt pyrolysis of latex
[NASA-CASE-NPO-14315-1]
                                                                    25 p0092 N80-10361
      Start up system for hydrogen generator used with
                                                                                                                           Microbial deterioration of hydrocarbon fuels
from oil shale, coal, and petroleum. 1:
Exploratory experiments
          an internal combustion engine
[NASA-CASE-NPO-13849-1]
                                                                   25 p0092 N80-10374
     Continuous coal processing method and means
[NASA-CASE-NPO-13758-2] 25 p0092 N8
                                                                    25 p0092 N80-10377
                                                                                                                              [AD-A073761]
                                                                                                                                                                                         25 p0150 N80-14259
                                                                                                                     NEW BRUNSWICK ELECTRIC POWER COMMISSION, PREDERICTON.
Measurement of energy to heat houses: Initial
     Borehole geological assessment [NASA-CASE-NPO-14231-1]
                                                                    25 p0104 N80-10709
     Method for forming a solar array strip
[NASA-CASE-NPO-13652-3] 25 p0153 N80-14474
                                                                                                                              study
                                                                                                                     PP=209448/2] 25 p0170 N80-15304
NEW MEXICO ENERGY AND MINERALS DEPT., SANTA PR.
Deep terrestrial heat flow measurements in New
Mexico and neighboring geologic areas
WATIONAL ABBOSPACE LAB., TORYO (JAPAN).

Fuel minimal take-off path of jet lift VIOL
aircraft, log no. C3558
                                                                    25 p0105 N80-11066
                                                                                                                               [PB-299489/5]
                                                                                                                                                                                         25 p0153 N80-14471
NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

Space applications of superconductivity - High
                                                                                                                     NEW MEXICO ENERGY INST., LAS CRUCES.

Economic analysis of small scale bioconversion
          field magnets
                                                                                                                               units in New Mexico
25 p0084 A80-20128
NATIONAL BUREAU OF STANDARDS, WASHINGTON, D.C.
Solar cell spectral response characterization
                                                                                                                               [PB-301390/1]
                                                                                                                                                                                         25 p0169 N80-15298
                                                                                                                           Use of geothermal energy for desalination in New Mexico: A feasibility study
[PB-299271/7] 25 p0179 N80-156
                                                                                                                                                                                         25 p0179 N80-15645
                                                                    25 p0037 A80-14685
                                                                                                                     NEW HEXICO INST. OF HINING AND TECHNOLOGY, SOCORBO.

Deep terrestrial heat flow measurements in New
Mexico and neighboring geologic areas
      Dimensions/NBS, volume 63, no. 6, June 1979
[PB-297836/9] 25 p0105 N80-10975
      [PB-297836/9] 25 p0
Heasurement techniques for high-power
          semiconductor materials and devices:
                                                                                                                               [PB-299489/5]
                                                                                                                                                                                         25 p0153 N80-14471
                                                                                                                     NEW MEXICO STATE UNIV., LAS CRUCES.

Deep terrestrial heat flow measurements in New
          [PB-298574/5]
                                                                    25 p0121 N80-12300
      Measurements and standards for recycled oil - 2
                                                                                                                              Revice and neighboring geologic areas
[PB-299489/5]
25 p0153 N80-14471
          [PB-299951/4]
                                                                    25 p0167 N80-15275
[PB-29951/4] 25 pure/ Mau-152/5
International activities: The fiscal year 1978
survey of international programs at NEL
[PB-300491/8] 25 p0181 M80-16004
NATIONAL ENGINEERING LAB., EAST KILBRIDE (SCOTLAND).
                                                                                                                     NEW BEXICO STATE UNIV., UNIVERSITY PARK.

District space heating potential of low temperature hydrothermal geothermal resources in the southwestern United States
Energy saving in injection molding
[NEL-662] 25 p0136 N80-13318
HATIONAL PIELD RESEARCH CENTER, INC., IOWA CITY,
                                                                                                                     in the southwestern United States
[NHEI-10-1] 25 p0172 N80-
NEW MEXICO UNIV., ALBUQUERQUE.

Hydrogen as a fuel. Citations from the
international aerospace abstracts data base
[NTIS/PS-79/0771/0] 25 p0094 N80-
Hydrogen production. Citations from the
international aerospace abstracts data base
                                                                                                                                                                                         25 p0172 N80-15582
IOWA.
     National environmental/energy workshop
assessment, phase 3. Energy programs
[PB-298587/7] 25 p0117 N80-11634
National environmental/energy workforce
assessment, phase 3. Air programs
[PB-298580/2] 25 p0117 N80-11670
NATIONAL OCCANIC AND ATMOSPHERIC ADMINISTRATION,
                                                                                                                                                                                         25 p0094 N80-10397
                                                                                                                               [NTIS/PS-79/0773/6]
                                                                                                                                                                                         25 p0094 N80-10401
                                                                                                                           Hydrogen storage as a hydride. Citations from the international aerospace abstracts data base
                                                                                                                           the international aerospace abstracts data [NTIS/FS-79/0712/8] 25 p01094 N80 Waste utilization as an energy source. Citations from the International Aerospace Abstracts Data Base [NTIS/FS-79/0765/2] 25 p0102 N80
BOULDER, COLO.
                                                                                                                                                                                         25 p0094 N80-10402
      Meteorological effects of oil refinery
         operations in Los Angeles [PB-300720/0]
                                                                    25 p0180 N80-15758
                                                                                                                           [NTIS/PS-79/0765/2] 25 p0102 N80-10667
Aircraft fuel. Citations from the International
Aerospace Abstracts Data Base
[NTIS/PS-79/0764/5] 25 p0102 N80-10668
District space heating potential of low
 NATIONAL RESEARCH COUNCIL OF CANADA, OTTAWA
 (ONTARIO).
```

Bulletin of the Division of Mechanical Engineering and the National Aeronautical

25 p0182 N80-16022

Establishment

[AD-A074885]

NEW YORK CITY RESOURCE RECOVERY TASK PORCE, H. Y.	Low-tem
methane recovery from sanitary landfills: gas	annua
recovery system installation and testing	[ ORNL
[PB-296622/4] 25 p0107 N80-11254	Experim
NORTHEASTERN LEGISLATIVE LEADERS ENERGY DESEARCH	[ CONF
PROJECT, ALBANY, N.Y. ALBANY, N.Y.	Land-ba
National Energy Act of 1978: A regional	power
assessment	[CONF
[PB-296479/9] 25 p0130 N80-12615	Industr
NORTHROP SERVICES, INC., HUNTSVILLE, ALA.	[CONP
Solar-climatic statistical study. Summary	Outlook
report, volume 1	[CONF
[HCP/T4016-1] 25 p0132 N80-12707	Interne
Solar-climactic statistical study	plate
[HCP/T4016-01/2] 25 p0149 N80-13747	[ORNL
NOTRE DAME UNIV., IND.	Charact
Optimal control studies of a solar heating system	gas/w
[LA-UR-78-2556] 25 p0100 N80-10646	[ORNL
Energy savings for a solar heated and cooled	Analysi
<pre>building through adaptive optimal control [LA-UR-78-2986]</pre>	vaste
[LA-UR-78-2986] 25 p0115 N80-11616	indus
•	[ORNL
O	OCEAN DATA
OAK BIDGE ASSOCIATED UNIVERSITIES, TENN.	OTEC th
Shale oil: US and world resources and prospects	Plant
for near-term commercialization in the United	[HCP/
States	OTEC th
*****	ship,
[ORAU/IEA-79-8(R)] 25 p0122 N80-12544 Development of the Bocky Mountain Energy and	[HCP/
	OHIO PUBLI
preliminary analysis	Demand :
	1; D
[ORAU-158] 25 p0179 N80-15670 OAK RIDGE MATIONAL LAB., TENN.	chara
Steam turbines	resid
[ANL/CES/TE-78-7] 25 p0095 N80-10502	imple
Computer software to calculate and map geologic	[HCP/
parameters required in estimating coal.	OHIO STATE
production costs	Ohio exp
[EPRI-EA-674] 25 p0095 N80-10584	[ PB-2:
Survey of solar thermal energy storage	Fuel ut:
subsystems for thermal/electric applications	OKIAHOMA SI
[ORNL/TM-5758] 25 p0098 N80-10627	OKLAHOMA S
Socioeconomic data requirements for	Characte
environmental assessment: Coal gasification	other mass :
and liquefaction projects	fossi
[CONF-780843-5] 25 p0103 N80-10693	[ FE-25
Environmental implications for geothermal energy	A probal
development	Conve
[CONF-790445-3] 25 p0103 N80-10694	relial
Chemical structures and reactivities of coal as	161101
an organic natural product	OKLAHOMA UZ
[CONF-790415-25] 25 p0105 N80-11168	Lateral
Economics of gasoline production from	flywho
underground coal gasification via mobil-M	[SAND-
process	Whirling
[CONF-790405-12] 25 p0106 N80-11246	mounte
Inventory of advanced energy technologies and	[ SAND-
energy conservation research and development,	Research
1976-1978, volume 1	flywhe
[GPO-41-481] 25 p0122 N80-12550	[SAND-
Low-temperature thermal energy storage program	Energy f
annual operating plan	develo
[ORNL/TH-6605] 25 p0125 N80-12568	Introd
Waste heat rejection from geothermal power	[ PB-29
stations	Energy f
[ORNL/TM-6533] 25 p0125 N80-12575	develo
Puel choice and aggregate energy demand in the	[ PB-29
commercial sector	Energy f
[ORNL/CON-27] 25 p0126 N80-12580	develo
Crystallographic contributions to the energy problem	shale
	[ PB-29
	Energy f
[CONF-780867-1] 25 p0128 N80-12598	
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for	develo
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis	develo [PB-29
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis [ORNL/TH-6668] 25 p0128 N80-12599	develo [PB-29 Energy f
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis [ORNL/TM-6668] 25 p0128 N80-12599 Economics of fusion driven symbiotic energy	develo [PB-29 Energy f develo
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis [ORNL/TM-6668] 25 p0128 N80-12599 Economics of fusion driven symbiotic energy systems	develo [PB-29 Energy f develo and na
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis [ORNL/TM-6668] 25 p0128 N80-12599 Economics of fusion driven symbiotic energy systems [CONF-790602-50] 25 p0128 N80-12602	develo [PB-29 Energy f develo and na [PB-29
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis [ORNL/TH-6668] 25 p0128 N80-12599 Economics of fusion driven symbiotic energy systems [CONF-790602-50] 25 p0128 N80-12602 Review of supporting research at Oak Ridge	develo [PB-29 Energy f develo and na [PB-29 Energy f
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis [ORNL/TM-6668] 25 p0128 N80-12599 Economics of fusion driven symbiotic energy systems [CONF-790602-50] 25 p0128 N80-12602 Review of supporting research at Oak Ridge National Laboratory for underground coal	develo [PB-29 Energy f develo and na [PB-29 Energy f develo
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis  [ORNL/TM-6668] 25 p0128 N80-12599 Economics of fusion driven symbiotic energy systems  [CONF-790602-50] 25 p0128 N80-12602 Review of supporting research at Oak Ridge National Laboratory for underground coal conversion	develo [PB-29 Energy f develo and na [PB-29 Energy f develo Geothe
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis [ORNL/TM-6668] 25 p0128 N80-12599 Economics of fusion driven symbiotic energy systems [CONF-790602-50] 25 p0128 N80-12602 Review of supporting research at Oak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295	develo [PB-29 Energy f develo and na [PB-29 Energy f develo Geothe [PB-29
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis [ORNL/MM-6668] 25 p0128 N80-12599 Economics of fusion driven symbiotic energy systems [CONF-790602-50] 25 p0128 N80-12602 Review of supporting research at Oak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 Condensation and evaporation heat transfer with	develo [PB-29 Energy f develo and na [PB-29 Energy f develo Geothe [PB-29 Critical
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis  [ORNL/TM-6668] 25 p0128 N80-12599 Economics of fusion driven symbiotic energy systems  [CONF-790602-50] 25 p0128 N80-12602 Review of supporting research at Oak Ridge National Laboratory for underground coal conversion  [CONF-790630-9] 25 p0136 N80-13295 Condensation and evaporation heat transfer with low-boiling temperature fluids	develo [PB-29 Energy f develo and na [PB-29 Energy f develo Geothe [PB-29 Critical rim-ty
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis [ORNL/TM-6668] 25 p0128 N80-12599 Economics of fusion driven symbiotic energy systems [CONF-790602-50] 25 p0128 N80-12602 Review of supporting research at Oak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 Condensation and evaporation heat transfer with low-boiling temperature fluids [CONF-790539-1] 25 p0137 N80-13412	develo [PB-29 Energy f develo and na [PB-29 Energy f develo Geothe [PB-29 Critical
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis [ORNL/TM-6668] 25 p0128 N80-12599 Economics of fusion driven symbiotic energy systems [CONF-790602-50] 25 p0128 N80-12602 Review of supporting research at Oak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 Condensation and evaporation heat transfer with low-boiling temperature fluids [CONF-790539-1] 25 p0137 N80-13412 Geopressure energy resource evaluation	develo [PB-29 Energy f develo and na [PB-29 Energy f develo Geothe [PB-29 Critical rim-ty
[CONF-780867-1] 25 p0128 N80-12598 Regional economic/demographic projections for energy policy analysis [ORNL/TM-6668] 25 p0128 N80-12599 Economics of fusion driven symbiotic energy systems [CONF-790602-50] 25 p0128 N80-12602 Review of supporting research at Oak Ridge National Laboratory for underground coal conversion [CONF-790630-9] 25 p0136 N80-13295 Condensation and evaporation heat transfer with low-boiling temperature fluids [CONF-790539-1] 25 p0137 N80-13412	develo [PB-29 Energy f develo and na [PB-29 Energy f develo Geothe [PB-29 Critical rim-ty

```
mperature thermal energy storage program
al operating plan
L/TN-6934] 25 p0139 N80-13631
mental and analytical OTEC studies at ORNL
F-790631-1] 25 p0143 N80-13666
ased application of an OTEC open-cycle
 r system
F-790631-3]
F-790631-3] 25 p0144 N80-13676
rial applications of advanced energy systems
P-790602-54] 25 p0147 N80-13708
P-790602-54]
k for nuclear fission energy
25 p0157 N80-14509
e-type ice-maker heat pumps

L/CON-23]

25 p015/ N80-14509

e-type ice-maker heat pumps

L/CON-23]

25 p0176 N80-15619

terization of operating conditions for
water heat recovery steam generators
L/TM-6622] 25 p0176 N80-15620
 is of potential implementation levels for
e heat utilization in the nuclear power
te heat utilization in the nuclear power istry

L/TB-63-2]
25 p0177 N80-15625

A SYSTEMS, INC., MONTEREY, CALIF.

thermal resource report for caribbean Seath Ship 13-15 degrees N 75-80 degrees N

/T2898]

hermal response report for Pacific plant

1,5 to 10 deg N 90 to 95 deg W

/T2898-01/3]

LUTILITIES COMMISSION, COLUMBUS.

TABRAGEMENT demonstration project. Stage
management demonstration project. Stage Development of residential load acteristics. Stage 4: Demonstration of dential incremental cost pricing emented by time-of-day metering /B8072-01] 25 p0118 N80-13
'B8072-01]
- UNIV., COLUMBUS.

Uposition center solar home project
- 25 p0164 N80-14577
                                            25 p0118 N80-11941
 ilization in residences
 -EA-894]
                                            25 p0175 N80-15604
 TATE UNIV., STILLWATER.
 erization of coal-derived liquids and
fossil fuel related materials employing
 spectrometry. Mass spectrometry and 1-energy conversion technology: A re-
                                                          A review
 537-7]
                                            25 p0120 N80-12198
bilistic study of wind-electric ersion systems from the point of view of
bility and capacity credit
                                            25 p0153 N80-14475
 NIV., NORMAN.
  and tilt whirl modes of flexibly mounted
leel systems

1-78-7070] 25 p0115 N80-11622

1g response and stability of flexibly
nd ring-type flywheel systems

-78-7073] 25 p0116 N80-11623

th on the dynamics of band-supported
peed systems
1-78-7074]
25 p0128
from the West: Energy resource
oppment systems report. Volume 1:
                                            25 p0128 N80-12597
orment systems reput. Totals ...
duction and general social controls
99177/61 25 p0152 N80-14463
99177/6] 25 p019
from the West: Energy resource
opment systems report. Volume 2: Coal
99178/4] 25 p0152 N80-14464
from the West: Energy resource
orment systems report. Volume 3: Oil
                                           25 p0152 N80-14465
from the West: Energy resource
opment systems report. Volume 4:
                                                              Oranium
99180/0]
                                            25 p0152 N80-14466
from the West: Energy resource
opment systems report.
                                         Volume 5: Oil
atural gas
99181/8] 25 p011
from the West: Energy resource
                                            25 p0152 N80-14467
orment systems report. Volume 6:
ermal
99182/61
                                           25 p0152 N80-14468
l speeds and natural frequencies of
ype composite-material flywheels
-78-7049] 25 p017
                                            25 p0176 N80-15622
```

OPTICAL COATING LAB., INC., CITY OF INDUSTRY, CALIF.	PUERTO RICO SCIENTIFIC RESEARCH LAB., INC., RIO
Silicon solar cell process development,	PIEDRAS.  Production of sugarcane and tropical grasses as
fabrication and analysis, phase 1 [NASA-CR-162427] 25 p0109 N80-11561	a renewable energy source
Assessment of present state-of-the-art sawing	[DOE/CS/5912-T1] 25 p0168 N80-15277
technology of large diameter ingots for solar	PURDUE UNIV., LAFAYETTE, IND.  The water splitting light reaction of
sheet material [NASA-CR-162535] 25 p0151 N80-14273	chlorophyll a dihydrate. Visible light solar
OREGON STATE UNIV., CORVALLIS.	energy conversion after the primary reaction in plant photosynthesis
Critique of the meteorological and air quality baseline monitoring program for the prototype	25 p0133 N80-13188
oil shale leaseholds. Part A: Comments on	Sulfur fixation during coal gasification (PB-301104/61 25 p0169 N80-15296
the approach taken and recommendations for continuing program. Part B: Comments on the	[PB-301104/6] 25 pu169 N80-15296
data acquisition and management	R
[DOE/EV-70031/4-PI-A/B] 25 p0148 N80-13723 Investigation of the viability and cost	RADIAN CORP., AUSTIN, TEX.
effectiveness of solid fuel gasifiers close	Energy from the West: Energy resource
coupled to internal combustion engines for 200	development systems report. Volume 1: Introduction and general social controls
kWe power generation [DOF/RL-90476-13] 25 p0169 N80-15293	[PB-299177/6] 25 p0152 N80-14463
	Energy from the West: Energy resource development systems report. Volume 2: Coal
Р	[PB-299178/4] 25 p0152 N80-14464
PARAGON PACIFIC, INC., BL SEGUNDO, CALIF.	Energy from the West: Energy resource development systems report. Volume 3: Oil
Evaluation of feasibility of prestressed concrete for use in wind turbine blades	shale
[NASA-CR-159725] 25 p0170 N80-15553	[PB-299179/2] 25 p0152 N80-14465
PEDCO-ENVIRONMENTAL, INC., CINCINATI, OHIO.  EPA utility FGD (Flue Gas Desulfurization)	Energy from the West: Energy resource development systems report. Volume 4: Uranium
survey: December 1978 - January 1979	[PB-299180/0] 25 p0152 N80-14466
[PB-299399/6] 25 p0179 N80-15682	Energy from the West: Energy resource development systems report. Volume 5: Oil
PRINSYLVANIA UNIV., PHILADELPHIA. Optimal insulation of pipes and tanks for solar	and natural gas
heating systems	[PB-299181/8] 25 p0152 N80-14467 Energy from the West: Energy resource
[ALO-5319-2] 25 p0102 N80-10660 PENNZOIL CO., VIENNA, W. VA.	development systems report. Volume 6:
Oil recovery by carbon dioxide injection	Geothermal [PB-299182/6] 25 p0152 N80-14468
[ORO-5301-34] 25 p0108 N80-11545 PHILLIPS PETROLEUM CO., HOMER CITY, PA.	RAND CORP., SANTA MONICA, CALIF.
Gas generator research and development: EI-GAS	Soviet energy balances [RAND/R-2257-DOE] 25 p0099 N80-10634
process [FE-1207-62] 25 p0135 N80-13288	Resolving environmental issues in energy
PITTSBURGH UNIV., PA.	development: Roles for the Department of
Theoretical analysis of multi-cell, high efficiency broad spectral sensitivity sclar	Energy and its field offices [RAND/R-2335-DOF] 25 p0099 N80-10636
cells	RASOR ASSOCIATES, INC., SUNNYVALE, CALIF.
25 p0138 N80-13617	A cesium TELEC experiment at Lewis Research Center [NASA-CR-159729] 25 p0151 N80-14386
PLANCO, INC., DALLAS, TEX. Survey of the research into energy-economy	RCA LABS., PRINCETON, N. J.
interactions. Volume 1: Survey [HCP/I6346-01/1-VOL-1] 25 p0139 N80-13633	Analysis of S-band solid-state transmitters for the solar power satellite
[HCP/I6346-01/1-VOL-1] 25 p0139 N80-13633 POWER ELECTRONICS ASSOCIATES, INC., LINCOLN, MASS.	[NASA-CR-160320] 25 p0096 N80-10600
Bi-directional four quadrant (BDQ4) power	Materials for solar thermal conversion [COC-4557-1] 25 p0143 N80-13670
converter development [NASA-CR-159660] 25 p0154 N80-14480	BENSSELAER POLITECHNIC INST., TROY, N. Y.
POWER TECHNOLOGIES, INC., SCHENECTADY, N. Y.	Barriers to the application of wind energy conversion systems in urban settings
Induction and synchronous machines for vertical axis wind turbines	25 p0155 N80-14494
[SAND-79-7017] 25 p0144 N80-13675	RESEARCH TRIANGLE INST., RESEARCH TRIANGLE PARK, N. C.
PRC EMERGY ANALYSIS CO., LOS ANGELES, CALIF. Satellite Power System (SPS) preliminary	Novel concentrator photovoltaic converter system
societal assessment	development [SAND-79-7040] 25 p0143 N80-13661
[HCP/R4024-01/14] 25 p0101 H80-10657 PRC ENERGY ANALYSIS CO., MCLEAN, VA.	ROCKET RESEARCH CORP., REDMOND, WASH.
Solar energy commercialization for African	Heat pump centered integrated community energy
countries [HCP/CS-2522] 25 p0127 N80-12591	systems: System development [ANL/ICES-TM-27] 25 p0110 N80-11571
Satellite Power System (SPS): An overview of	ROCKWELL INTERNATIONAL CORP., DOWNEY, CALIF.
<pre>prospective organizational structures in the solar satellite field</pre>	Cooling a radioisotope power source in the Space Shuttle Orbiter
[TID-29094] 25 p0154 N80-14478	FASME PAPER 79-ENAS-441 25 p0039 A80-15267
Engineering concerns in solar system design and	Satellite Power Systems (SPS) concept definition study. Volume 4: SPS point design definition
operation [SOLAR/0811-79/01] 25 p0160 N80-14539	[NASA-CR-150683] 25 p0119 N80-12106
System tests and applications photovoltaic program [HCP/T4024-01/15] 25 p0163 N80-14566	ROSENBLATT (M.) AND SON, INC., NEW YORK: OTEC platform configuration and integration.
[HCP/T4024-01/15] 25 p0163 N80-14566 PRINCETON UNIV., N. J.	Volume 1: Systems engineering and integration
Biomass energy enhancement: A report to the	[TID-29418] 25 p0142 N80-13655 OTEC platform configuration and integration,
President's Council on Environmental Quality [PB-296624/0] 25 p0094 %80-10396	executive summary
Fundamental and semi-global kinetic mechanisms	[DOE/ET-4065/1] 25 p0147 N80-13711 OTEC platform configuration and integration,
of hydrocarbon combustion [COC-4272-3] 25 p0165 N80-14587	appendixes to volume 2
PUBLIC SERVICE ELECTRIC AND GAS CO., NEWARK, N. J.	[.DOE/ET-4065/1-VOL-2-APP] 25 p0147 N80-13713
Battery Energy Storage Test (BEST) facility [EPHI-EM-1005] 25 p0098 N80-10628	OTEC platform configuration and integation.  Volume 3: Project plan
[ NE DT - DD - 1002 ] 72 \$0020 800 10050	[DOE/ET-4065/1-VOL-3] 25 p0148 N80-13714

S	Darrieus wind turbine program at Sandia Laboratories
SANDIA LABS., ALBUQUERQUE, M. MEX.	[SAND-79-0997C] 25 p016
Dispersed power systems and total energy	Hazardous properties and environmental of materials used in Solar Heating an
[SAND-78-2006C] 25 p0096 N80-10608	(SHAC) technologies: Interim handboo
Safety and environmental implications DOE/Sandia	[DOE/EV-0028] 25 p016
Midtemperature Solar Systems Test Facility [SAND-78-2292C] 25 p0097 N80-10609	Low temperature reaction path for coal
Sensitivity study of Brayton cycle power plant	liquefaction [SAND-79-0738C] 25 p016
performance	Design of photovoltaic systems for resid
[SAND-78-8020] 25 p0098 N80-10626	applications in the United States
Analytical evaluation of a solar thermophotovoltaic (TPV) converter	[SAND-78-2186C] 25 p017 Methodology for determining the configu
[SAND-79-0504C] 25 p0099 N80-10638	the optimum solar total energy system
Graphical representation of TMY solar radiation	[SAND-79-0422] 25 p0172
availability for one- and two-axis solar collectors	Design and performance of silicon solar
[SAND-79-0418] 25 p0100 N80-10640	under concentrated sunlight [SAND-79-1165C] 25 p017:
Determination of the technical and economic	Status of the US Department of Energy
feasibility of luminescent solar concentrators	photovoltaic concentrator development
[SAND-79-7005] 25 p0100 N80-10650 Concentrating solar collector test results	[SAND-78-2187C] 25 p017
Collector Module Test Pacility (CMTF)	Evaluation of the evacuated solar annula receivers used at the Midtemperature :
[SAND-78-0977] 25 p0111 N80-11580	Systems Test Facility (MSSTF)
Heat loss reduction techniques for annular solar	[SAND-78-0983] 25 p0173
receiver designs [SAND-78-1769] 25 p0111 N80-11581	Dynamic storage in solar total energy pr
Design considerations for a proposed passive	[SAND-78-0958C] 25 p0174 Department of Energy large solar central
vacuum solar annular receiver	systems semiannual review
[SAND-78-0982] 25 p0111 N80-11582	[SAND-78-8511] 25 p0175
Midtemperature Solar Systems Test Facility (MSSTF) project test results: Phase 4A MSSTF	Department of Energy large solar central systems semiannual review
system operation	[SAND-79-8508] 25 p0175
[SAND-78-1088] 25 p0114 N80-11613	Overview of flywheel energy storage com
Lateral and tilt whirl modes of flexibly mounted flywheel systems	development
[SAND-78-7070] 25 p0115 N80-11622	[SAND-78-1999C] 25 p0176 Sandia composite-rim flywheel developmen
Overview of in situ oil shale technology and	[SAND-78-1865C] 25 p0177
recent advances in true in situ retort modeling	PULSAR: An inductive pulse power source
[SAND-78-2367C] 25 p0122 N80-12543 Batteries for specific solar applications	[SAND-79-1246C] 25 p0177 Solar mechanical energy storage program
[SAND-79-1428C] 25 p0124 N80-12559	and systems analysis results
Effect of operating temperatures on the cost of	[SAND-79-1642C] 25 p0178
energy from solar thermal electric power plants [SAND-79-0801] 25 p0124 N80-12563	Solar enhanced oil recovery: An assessm
Evaluation of solar Bankine-cycle engine systems	economic feasibility [SAND-79-0787] 25 p0178
[SAND-78-0986] 25 p0125 N80-12571	Pulsed power for fusion
Closed-cycle hydride engines [SAND-78-2228] 25 p0125 N80-12572	[SAND-79-0933C] 25 p0181
[SAND-78-2228] 25 p0125 N80-12572 Efforts on the economic analysis of Darrieus	SANDIA LABS., LIVERMORE, CALIF. Applications analysis of fixed site hydr
vertical axis wind turbines	storage
[SAND-78-1851C] 25 p0126 N80-12579	[SAND-78-8272] 25 p0092
Solar mechanical energy storage project [SAND-78-1982C] 25 p0127 N80-12590	Dissociation pressure measurements on sa
Wind time series analyses for WECS applications	proposed for thermochemical energy sto [SAND-79-8033] 25 p0160
[SAND-77-1701] 25 p0132 N80-12709	Systems Studies for Central Solar Therma
User's manual for the magnetohydrodynamic generator channel code, MHDCHN	[CONF-780383] 25 p0162
[SAND-78-1260] 25 p0132 N80-12894	SOLAR CONTROL CORP., BOULDER, COLO.  Development and testing of the Solar Con
Coal liquefaction short residence time process	Corporation modular controller and Sol
research	subsystem
[SAND-79-1400] 25 p0133 N80-13272 Effects of metallurgical microstructure of	[NASA-TM-78243] 25 p0156
armatures on compressed magnetic field	SOLAR ENERGY INFORMATION SERVICES, SAN MATE Engineers guide to solar energy
generators	[PB-297043/2] 25 p0164
[SAND-79-0890C] 25 p0137 N80-13375 Development of in situ marine seismic and	SOLAREX CORP., ROCKVILLE, HD.
geotechnical instrumentation systems	Phase 2 of the array automated assembly the low cost silicon solar array proje
[SAND-79-0868C] 25 p0137 N80-13431	[NASA-CR-162426] 25 p0110
Recent spin test of two composite wagon wheel flywheels	Silicon concentrator solar cell manufact
[SAND-79-1669C] 25 p0140 N80-13640	development [SAND-79-7021] 25 p0146
Solar thermal test facility heliostat development	[SAND-79-7021] 25 p0146 SOUTHERN CALIFORNIA EDISON CO., ROSENEAD.
[SAND-78-1177] 25 p0140 N80-13642	Commercial solar augmented heat pump sys
Performance testing of the General Electric Engineering Prototype Collector	[EPRI-ER-1004] 25 p0160
[SAND-79-0514] 25 p0141 N80-13645	SRI INTERNATIONAL CORP., MENLO PARK, CALIP. Proceedings of the 1978 Coal Chemistry W
Sandia Laboratories operational experience with	[CONF-780372] 25 p0150
small heat engines in solar thermal power	Mission analysis for the Federal fuels f
systems [SAND-78-2163C] 25 p0146 N80-13693	biomass program. Volume 3: Feedstock
Weight minimization of sandwich type solar	availability [SAN-0115-T1] 25 p0168
collector panels	Economic impacts of energy conservation
[SAND-78-2305C] 25 p0147 N80-13710 Thermal aging characteristics of	renewable energy sources
electrodeposited black chrome solar coatings	[UCRL-15087] 25 p0177 STANFORD LINEAR ACCELERATOR CENTER, CALIF.
[SAND-78-2094C] 25 p0159 N80-14527	Bydrogen-electric power drives

```
25 p0160 N80-14538
                                           nmental effects
ating and Cooling
handbook
                                            25 p0163 N80-14565
                                            or coal
                                            25 p0169 N80-15288
                                            for residential
                                            tes
                                            25 p0171 N80-15566
configuration of
                                            / system
25 p0172 N80-15574
                                            n solar cells
                                            25 p0172 N80-15577
                                            nergy
                                            elopment project
25 p0172 N80-15578
or annular
                                            rature Solar
                                            25 p0173 N80-15585
                                            energy programs
25 p0174 N80-15600
c central power
                                            25 p0175 N80-15601
c central power
                                            25 p0175 N80-15602
                                            age component
                                            25 p0176 N80-15623
                                            evelopment
25 p0177 N80-15624
                                            r source
                                            25 p0177 N80-15627
                                            program overview
                                            25 p0178 N80-15637
                                             assessment of
                                            25 p0178 N80-15641
                                            25 p0181 N80-15908
                                            ite hydrogen
                                            25 p0092 N80-10384
                                            ts on salts
                                            ergy storage
                                            25
                                               p0160 N80-14532
                                           r Thermal Electric
25 p0162 N80-14558
                                            olar Control
                                            and Solarstat
                                           25 p0156 N80-14498
SAN MATTO, CALIF.
                                            25 p0164 N80-14574
                                            ssembly task for
                                            ay project
25 p0110 N80-11565
                                            manufacturing
                                            25 p0146 N80-13697
ENEAD.
                                           pump system
25 p0160 N80-14537
(, CALIP.
emistry Workshop
25 p0150 N80-14264
                                             fuels from
                                            eedstock
                                            25 p0168 N80-15276
                                            rvation and
  [UCRL-15087] 25 p0177 N80-15633 FORD LINEAR ACCELERATOR CENTER, CALIF.
Hydrogen-electric power drives [SLAC-PUB-2203]
                                           25 p0113 N80-11604
```

STANFORD UNIV., CALIF.	TRU, INC., MCLEAN, VA.
Geological and geothermal data use	International coal technology summary document
investigations for application explorer	[DOE/PE-0010] 25 p0115 N80-11621
mission-A, heat capacity mapping mission	TRU, INC., REDONDO BEACH, CALIF.
[E80-10033] 25 p0170 N80-15528	Environmental assessment report: Lurgi coal
STOCKHOLM UNIV. (SWEDEN).	gasification systems for SNG
Interaction in limited arrays of windmills:	[PB-298109/0] 25 p0120 N80-12204
Review of earlier results from a simple model	Emissions assessment of conventional stationary
and a presentation of the capabilities of a	combustion systems. Volume 1: Gas- and
dynamic PBL model	oil-fired residential heating sources
[DM-26] 25 p0116 N80-11631	[PB-298494/6] 25 p0131 N80-12637
Effects of energy policy on industry	TRU ENERGY SYSTEMS PLANNING DIV., MCLEAN, VA.
[USFFE-1978-8] 25 p0129 N80-12604	Methane recovery from coalbeds
Global ecology and man	[DOE/MC-08089-T1] 25 p0093 N80-10387
25 p0131 N80-12668	TRW SYSTEMS GROUP, MCLEAN, VA.
SYSTEM DEVELOPMENT CORP., SANTA MONICA, CALIF.	Methane recovery from coalbeds project.
The 10MW(e) solar thermal central receiver pilot	Technology test projects: Evaluation of
plant: Heliostat foundation and interface	candidate projects
structure investigation	[METC-8089-T4] 25 p0135 N80-13290
[SAND-78-8180] 25 p0097 N80-10612	TUTHILL PUMP CO., SAN RAPAEL, CALIF.
	Evaluation of feasibility of prestressed
<b>T</b>	concrete for use in wind turbine blades
l	[NASA-CR-159725] 25 p0170 N80-15553
TECHNICAL REPORT SERVICES, ROCKY RIVER, OHIO.	
Evaluation of feasibility of prestressed	. U
concrete for use in wind turbine blades	
[NASA-CR-159725] 25 p0170 N80-15553	UNIPIED INDUSTRIES, INC., ALEXANDRIA, VA.
TECHNICAL RESEARCH CENTRE OF FINLAND, ESPOC.	Managerial plan: Executive order 12003 and the
Evaluation of nuclear power plant siting by	National Energy Act
probabilistic assessment of environmental impact	[DOE/TIC-10067] 25 p0104 N80-10965
[VTT-EN-24] 25 p0118 N80-11891	UNION CARBIDE CORP., TONAWANDA, N.Y.
Report on Finnish technological activities	Economics of hydrogen production and
25 p0119 N80-11991	liquefaction updated to 1980
TECHNION - ISRAEL INST. OF TECH., HAIFA.	[NASA-CR-159163] 25 p0106 N80-11238
Aeroelastic stability and response of horizontal	UNITED TECHNOLOGIES CORP., SOUTH WINDSOR, CONN.
axis wind turbine blades	Integral cell scale-up and performance
25 p0032 A80-13116	verification
TENNESSEE UNIV., KNOXVILLE.	[EPRI-EM-1134] 25 p0141 N80-13646
Simulation approach for base-line energy-siting	UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES.
analysis	Low cost solar cells based on amorphous silicon
[CONF-790459-22] 25 p0157 N80-14511	electrodeposited from organic solvents
TEXACO, INC., EL MONTE, CALIF.	[SAN-0113-T3] 25 p0145 N80-13678
Gasification of residual materials from coal	UNIVERSITY OF WESTERN KENTUCKY, BOWLING GREEN.
liquefaction. Evaluation of SRC 2 vacuum	MSFC solar heating and cooling high speed
flash drum bottoms from Powhatan coal as a	performance (Hisper) code validation
feedstock for the Texaco gasification processes	[NASA-CR-161323] 25 p0096 N80-10604
feedstock for the Texaco gasification processes [PE-2247-2] 25 p0119 N80-12191	UTAH UNIV., SALT LAKE CITY.
[FE-2247-2] 25 p0119 N80-12191 TRIACO, INC., HONTEBELLO, CALIF.	UTAH UNIV., SAIT LAKE CITY.  Elucidation of coal structural components by
[FE-2247-2] 25 p0119 N80-12191	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction
[FE-2247-2] 25 p0119 N80-12191 TEIACO, INC., HONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by  short residence-time extractive liquefaction 25 p0119 N80-12188
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF.  Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188 Conference on performance monitoring techniques
[FE-2247-2] 25 p0119 N80-12191 TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289 TEIAS A&H RESEARCH FOUNDATION, COLLEGE STATION.	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling
[FE-2247-2] 25 p0119 N80-12191 TEIACO, INC., HONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] TEXAS AEM RESEARCH FOUNDATION, COLLEGE STATION. CONVERSION of coal-based methanol to ethylene	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems
[FE-2247-2] 25 p0119 N80-12191 TEIACO, INC., HONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289 TEXAS A&H RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEXAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., HONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEXAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON.	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF.  Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEXAS A&H RESPARCH FOUNDATION, COLLEGE STATION.  Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON.  Off-design performance analysis of MHD generator	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432]  V
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEIAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems  [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEXAS A6M RESERRCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAN PAPER 80-0176] 25 p0064 A80-18354	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction  25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems  [CONF-780432]  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEXAS A&M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPEN 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432]  V  VIRGINIA UNIV., CHARLOTTESVILLE. Experimental and theoretical evaluation of a novel concentrating solar energy collection
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEXAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPEN 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE. Experimental and theoretical evaluation of a novel concentrating solar energy collection system
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., HONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-2] 25 p0135 N80-13289  TEXAS A6M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPEN 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPEN 80-0254] 25 p0077 A80-19310	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction  25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems  [CONF-780432]  V  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluation of a novel concentrating solar energy collection system  [SAND-79-1053C]  25 p0144 N80-13671
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEXAS A&M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPEN 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPEN 80-0254] 25 p0077 A80-19310  TEXAS UNIV., AUSTIN.	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction  25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems  [CONF-780432]  V  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system  [SAND-79-1053C]  25 p0144 N80-13671  VON KARMAN INST. FOR PLUID DYNAMICS,
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEIAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPEN 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPEN 80-0254] 25 p0077 A80-19310  TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671 VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESE (BELIGIUM).
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEIAS A6M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPEN 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPEN 80-0254] 25 p0077 A80-19310  TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluation of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR FLUID DYNAMICS, RHODE-SAINT-GENESP (BELGIUM). Fluid Dynamics of Porous Media in Energy
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEXAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPER 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPER 80-0254] 25 p0077 A80-19310  TEXAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] 25 p0108 N80-11544	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE. Experimental and theoretical evaluation of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671 VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESS (BELGIUM). Pluid Dynamics of Porous Media in Energy Applications, volume 1
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEXAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPEN 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPEN 80-0254] 25 p0077 A80-19310  TEXAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] 25 p0108 N80-11544  TORONTO UNIV. (ONTARIO).	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Fluid Dynamics of Porous Media in Energy Applications, volume 1 [VKI-LEC-SER-1979-4-VOL-1] 25 p0121 N80-12338
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEIAS A&M RESEARCH FOUNDATION, COLLREE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPEN 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPEN 80-0254] 25 p0077 A80-19310  TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] 25 p0108 N80-11544  TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluation of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR FLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Fluid Dynamics of Porous Media in Energy Applications, volume 1  [VKI-LEC-SEE-1979-4-VOL-1] 25 p0121 N80-1238 Fluid Dynamics of Porous Media in Energy
[FE-2247-2] TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] TEXAS A6M RESERRCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPER 80-0176] Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPER 80-0254] TEXAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluation of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM). Pluid Dynamics of Porous Media in Energy Applications, volume 1 [VKI-LEC-SER-1979-4-VOL-1] 25 p0121 N80-12338 Fluid Dynamics of Porous Media in Energy Applications, volume 2
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEIAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPEN 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPEN 80-0254] 25 p0077 A80-19310  TEXAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] 25 p0108 N80-11544  TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-2441] 25 p0119 N80-12189	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Pluid Dynamics of Porous Media in Energy Applications, volume 1 [VKI-LEC-SEE-1979-4-VOL-1] 25 p0121 N80-12338 Fluid Dynamics of Porous Media in Energy Applications, volume 2 [VKI-LEC-SEE-1979-4-VOL-2] 25 p0121 N80-12346
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEIAS A&M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPER 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPER 80-0254] 25 p0077 A80-19310  TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] 25 p0108 N80-11544 TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189  TRAMSPORTATION AND ECONOMIC BESEARCH ASSOCIATES,	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluation of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR FLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Fluid Dynamics of Porous Hedia in Energy Applications, volume 1  [VKI-LEC-SEE-1979-4-VOL-1] 25 p0121 N80-12338 Fluid Dynamics of Porous Hedia in Energy Applications, volume 2  [VKI-LEC-SEE-1979-4-VOL-2] 25 p0121 N80-12346 Application of packed beds to energy storage use
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-2] 25 p0135 N80-13289  TEXAS A6M RESERRCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPER 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPER 80-0254] 25 p0077 A80-19310  TEXAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] 25 p0108 N80-11544  TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189  TRAMSPORTATION AND ECONOMIC BESEARCH ASSOCIATES, INC., ARIINGTON, VA.	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Pluid Dynamics of Porous Media in Energy Applications, volume 1 [VKI-LEC-SEE-1979-4-VOL-1] 25 p0121 N80-12338 Fluid Dynamics of Porous Media in Energy Applications, volume 2 [VKI-LEC-SEE-1979-4-VOL-2] 25 p0121 N80-12346
[FE-2247-2] 25 p0119 N80-12191  TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TEIAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPEN 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPEN 80-0254] 25 p0077 A80-19310  TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] 25 p0108 N80-11544  TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-244] 25 p0119 N80-12189  TRAMSPORTATION AND ECONOMIC RESEARCH ASSOCIATES, INC., ARLINGTON, VA. Disaggregating PIES fuel forecasts, validating	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluation of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Pluid Dynamics of Porous Hedia in Energy Applications, volume 1 [VKI-LEC-SER-1979-4-VOL-1] 25 p0121 N80-12338  Fluid Dynamics of Porous Media in Energy Applications, volume 2 [VKI-LEC-SER-1979-4-VOL-2] 25 p0121 N80-12346  Application of packed beds to energy storage use of latent heat of fusion
[FE-2247-2] 25 p0119 N80-12191  TBIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TBIAS A6M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TBIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPER 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPER 80-0254] 25 p0077 A80-19310  TBIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] 25 p0108 N80-11544  TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241] 25 p0119 N80-12189  TRAMSPORTATION AND ECONOMIC RESEARCH ASSOCIATES, INC., ARLINGTON, VA. Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence—time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR FLUID DYNAMICS, RHODE—SAINT—GENESE (BELGIUM).  Fluid Dynamics of Porous Hedia in Energy Applications, volume 1  [VKI-LEC-SEE-1979-4-VOL-1] 25 p0121 N80-12338 Fluid Dynamics of Porous Hedia in Energy Applications, volume 2  [VKI-LEC-SEE-1979-4-VOL-2] 25 p0121 N80-12346 Application of packed beds to energy storage use of latent heat of fusion 25 p0121 N80-12353
[FE-2247-2] 25 p0119 N80-12191  TRIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TRIAS A6M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TRIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPER 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPER 80-0254] 25 p0077 A80-19310  TRIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] 25 p0108 N80-11544  TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241] TRANSPORTATION AND ECONOMIC RESEARCH ASSOCIATES, INC., ARLINGTON, VA.  Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence—time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Pluid Dynamics of Porous Media in Energy Applications, volume 1 [VKI-LEC-SEE-1979-4-VOL-1] 25 p0121 N80-12338  Fluid Dynamics of Porous Media in Energy Applications, volume 2 [VKI-LEC-SEE-1979-4-VOL-2] 25 p0121 N80-12346 Application of packed beds to energy storage use of latent heat of fusion 25 p0121 N80-12353
TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] TEIAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAM PAPEN 80-0176] Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAM PAPEN 80-0254] TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241] TRANSPORTATION AND ECONOMIC RESEARCH ASSOCIATES, INC., ARLINGTON, VA. Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services [TID-29000] 25 p0114 Ne0-11612	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence—time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR FLUID DYNAMICS, RHODE—SAINT—GENESE (BELGIUM).  Fluid Dynamics of Porous Hedia in Energy Applications, volume 1  [VKI-LEC-SEE-1979-4-VOL-1] 25 p0121 N80-12338 Fluid Dynamics of Porous Hedia in Energy Applications, volume 2  [VKI-LEC-SEE-1979-4-VOL-2] 25 p0121 N80-12346 Application of packed beds to energy storage use of latent heat of fusion 25 p0121 N80-12353
[FE-2247-2] 25 p0119 N80-12191  TRIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] 25 p0135 N80-13289  TRIAS A6M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] 25 p0169 N80-15297  TRIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPER 80-0176] 25 p0064 A80-18354 Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPER 80-0254] 25 p0077 A80-19310  TRIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] 25 p0108 N80-11544  TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241] TRANSPORTATION AND ECONOMIC RESEARCH ASSOCIATES, INC., ARLINGTON, VA.  Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction  25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems  [CONF-780432]  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system  [SAND-79-1053C]  VON KARMAN INST. FOR PLUID DYNAMICS,  RHODE-SAINT-GENESE (BELGIUM).  Fluid Dynamics of Porous Media in Energy Applications, volume 1  [VKI-LEC-SER-1979-4-VOL-1]  25 p0121 N80-12338  Fluid Dynamics of Porous Media in Energy Applications, volume 2  [VKI-LEC-SER-1979-4-VOL-2]  25 p0121 N80-12346  Application of packed beds to energy storage use of latent heat of fusion  25 p0121 N80-12353  W  WASHINGTON SCIENTIFIC MARKETING, INC., WASHINGTON, D. C.
TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-2]  TEIAS A&M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4]  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPER 80-0176]  Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPER 80-0254]  TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1]  TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241]  TRANSPORTATION AND ECONOMIC BESBARCH ASSOCIATES, INC., ARLINGTON, VA.  Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services [TID-290001]  25 p0114 N80-11612 TRW DEPENSE AND SPACE SYSTEMS GROUP, REDONDO BEACH,	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence—time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Pluid Dynamics of Porous Media in Energy Applications, volume 1 [VKI-LEC-SER-1979-4-VOL-1] 25 p0121 N80-12338  Fluid Dynamics of Porous Media in Energy Applications, volume 2 [VKI-LEC-SER-1979-4-VOL-2] 25 p0121 N80-12346 Application of packed beds to energy storage use of latent heat of fusion 25 p0121 N80-12353  W  WASHINGTON SCIPNTIFIC MARKETING, INC., WASHINGTON, D. C. Department of Energy workshops on industrial
TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-247-2]  TEXAS A&M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4]  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPER 80-0176]  Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPER 80-0254]  TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1]  TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241] TRANSPORTATION AND ECONOMIC RESEARCH ASSOCIATES, INC., ARLINGTON, VA.  Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services [TID-29000] TRE DEPENSE AND SPACE SYSTEMS GROUP, REDONDO BEACH, CALIF.	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR FLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Pluid Dynamics of Porous Media in Energy Applications, volume 1  [VKI-LEC-SER-1979-4-VOL-1] 25 p0121 N80-12338  Fluid Dynamics of Porous Media in Energy Applications, volume 2  [VKI-LEC-SER-1979-4-VOL-2] 25 p0121 N80-12346  Application of packed beds to energy storage use of latent heat of fusion 25 p0121 N80-12353  WASHINGTON SCIENTIFIC MARKETING, INC., WASHINGTON, D. C.  Department of Energy workshops on industrial energy conservation reporting
TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] TEXAS A&R RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPER 80-0176] Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPER 80-0254] TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241] TRANSPORTATION AND ECONOMIC BESEARCH ASSOCIATES, INC., ARLINGTON, VA. Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services [TID-29000] TRW DEPENSE AND SPACE SYSTEMS GROUP, REDONDO BEACH, CALIF. Heat pipe cooled power magnetics [NASA-CE-159659] PEP solar array definition study	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction  25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432]  V  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system [SAND-79-1053C]  VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Fluid Dynamics of Porous Media in Energy Applications, volume 1 [VKI-LEC-SER-1979-4-VOL-1]  I VAL-LEC-SER-1979-4-VOL-1]  Puid Dynamics of Porous Media in Energy Applications, volume 2 [VKI-LEC-SER-1979-4-VOL-2]  Application of packed beds to energy storage use of latent heat of fusion  25 p0121 N80-12353  W  WASHINGTON SCIPNTIFIC MARKETING, INC., WASHINGTON, D. C. Department of Energy workshops on industrial energy conservation reporting [DOZ/CS-1830-T3]  25 p0099 N80-10635
TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-2]  TEIAS A&M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4]  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPER 80-0176]  Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPER 80-0254]  TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1]  TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241]  TRANSPORTATION AND ECONOMIC RESEARCH ASSOCIATES, INC., ARLINGTON, VA. Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services [TID-29000]  25 p0114 N80-11612 TRW DEFENSE AND SPACE SYSTEMS GROUP, REDONDO BEACH, CALIF.  Heat pipe cooled power magnetics [NASA-CE-159659]  25 p0136 N80-13362	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluation of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Pluid Dynamics of Porous Media in Energy Applications, volume 1 [VKI-LEC-SEE-1979-4-VOL-1] 25 p0121 N80-12338  Fluid Dynamics of Porous Media in Energy Applications, volume 2 [VKI-LEC-SEE-1979-4-VOL-2] 25 p0121 N80-12346  Application of packed beds to energy storage use of latent heat of fusion 25 p0121 N80-12353  W  WASHINGTON SCIENTIFIC MARKETING, INC., WASHINGTON, D. C.  Department of Energy workshops on industrial energy conservation reporting [DOE/CS-1830-T3] 25 p0099 N80-10635  WASHINGTON STATE UNIV., PULLMAN.
TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-2]  TEIAS A&M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4]  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPER 80-0176]  Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPER 80-0254]  TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1]  TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241]  TRANSPORTATION AND ECONOMIC RESEARCH ASSOCIATES, INC., ARLINGTON, VA. Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services [TID-29000]  TEND DEFENSE AND SPACE SYSTEMS GROUP, REDONDO BEACH, CALIF.  Heat pipe cooled power magnetics [NASA-CR-159659]  PEP solar array definition study [NASA-CR-160398]  Coal sulfur measurements	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluation of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR FLUID DYNAMICS, RHODE-SAINT-GENESS (BELGIUM).  Pluid Dynamics of Porous Hedia in Energy Applications, volume 1  [VKI-LEC-SER-1979-4-VOL-1] 25 p0121 N80-12338 Fluid Dynamics of Porous Media in Energy Applications, volume 2  [VKI-LEC-SER-1979-4-VOL-2] 25 p0121 N80-12346 Application of packed beds to energy storage use of latent heat of fusion 25 p0121 N80-12353  W WASHINGTON SCIENTIFIC MARKETING, INC., WASHINGTON, D. C.  Department of Energy workshops on industrial energy conservation reporting [DOE/CS-1830-T3] 25 p0099 N80-10635 WASHINGTON STATE UNIV., PULLMAN.  Comparison of geothermal energy with coal, oil,
TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] TEIAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAM PAPEN 80-0176] Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAM PAPEN 80-0254] TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241] TRANSPORTATION AND ECONOMIC RESEARCH ASSOCIATES, INC., ARLINGTON, VA. Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services [TID-29000] TRW DEPENSE AND SPACE SYSTEMS GROUP, REDONDO BEACH, CALIF. Heat pipe cooled power magnetics [NASA-CR-159659] PEP solar array definition study [NASA-CR-160398] 25 p0138 N80-13622	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence—time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluation of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR FLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Fluid Dynamics of Porous Media in Energy Applications, volume 1 [VKI-LEC-SER-1979-4-VOL-1] 25 p0121 N80-12338  Fluid Dynamics of Porous Media in Energy Applications, volume 2 [VKI-LEC-SER-1979-4-VOL-2] 25 p0121 N80-12346  Application of packed beds to energy storage use of latent heat of fusion 25 p0121 N80-12353  W  WASHINGTON SCIFNTIFIC MARKETING, INC., WASHINGTON, D. C.  Department of Energy workshops on industrial energy conservation reporting [DOE/CS-1830-T3] 25 p0099 N80-10635  WASHINGTON STATE UNIV., PULLMAN.  Comparison of geothermal energy with coal, oil, and natural gas for selected uses
TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] TEIAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPEN 80-0176] Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPEN 80-0254] TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241] TRANSPORTATION AND ECONOMIC RESEARCH ASSOCIATES, INC., ABLINGTON, VA. Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services [TID-29000] TRW DEPENSE AND SPACE SYSTEMS GROUP, REDONDO BEACH, CALIF. Heat pipe cooled power magnetics [NASA-CR-159659] PEP solar array definition study [NASA-CR-160398] Coal sulfur measurements [PB-299575/1] TRW, INC., CLEVELAND, OBIO.	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Pluid Dynamics of Porous Media in Energy Applications, volume 1 [VKI-LEC-SEE-1979-4-VOL-1] 25 p0121 N80-12338  Fluid Dynamics of Porous Media in Energy Applications, volume 2 [VKI-LEC-SEE-1979-4-VOL-2] 25 p0121 N80-12346  Application of packed beds to energy storage use of latent heat of fusion 25 p0121 N80-12353  W  WASHINGTON SCIENTIFIC MARKETING, INC., WASHINGTON, D. C.  Department of Energy workshops on industrial energy conservation reporting [DOE/CS-1830-T3] 25 p0099 N80-10635  WASHINGTON STATE UNIV., PULLMAN.  Comparison of geothermal energy with coal, oil, and natural gas for selected uses [DOE/ET-27139-1] 25 p0123 N80-12558
TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22]  TEIAS A&M RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4]  TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [ALAA PAPER 80-0176]  Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [ALAA PAPER 80-0254]  TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1]  TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241]  TRAN SPORTATION AND ECONOMIC BESBARCH ASSOCIATES, INC., ARLINGTON, VA.  Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services [TID-290001]  TRW DEPENSE AND SPACE SYSTEMS GROUP, REDONDO BEACH, CALIP. Heat pipe cooled power magnetics [NASA-CR-159659] PEP solar array definition study [NASA-CR-160398] Coal sulfur measurements [PB-299575/1]  TRW, INC., CLEVELAND, OHIO. Solar power satellite system definition study.	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence—time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluation of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR FLUID DYNAMICS, RHODE—SAINT—GENESE (BELGIUM).  Fluid Dynamics of Porous Hedia in Energy Applications, volume 1  [VKI-LEC—SER-1979-4-VOL-1] 25 p0121 N80-12338 Fluid Dynamics of Porous Hedia in Energy Applications, volume 2  [VKI-LEC—SER-1979-4-VOL-2] 25 p0121 N80-12346 Application of packed beds to energy storage use of latent heat of fusion 25 p0121 N80-12353  W WASHINGTON SCIENTIFIC MARKETING, INC., WASHINGTON, D. C.  Department of Energy workshops on industrial energy conservation reporting [DOE/CS-1830-T3] 25 p0099 N80-10635  WASHINGTON STATE UNIV., PULLMAN.  Comparison of geothermal energy with coal, oil, and natural gas for selected uses [DOE/ET-27139-1] 25 p0123 N80-12558
TEIACO, INC., MONTEBELLO, CALIF. Gasification of residual materials from coal liquefaction [FE-2247-22] TEIAS AEM RESEARCH FOUNDATION, COLLEGE STATION. Conversion of coal-based methanol to ethylene and a gaseous fuel [PB-301256/4] TEIAS UNIV., ARLINGTON. Off-design performance analysis of MHD generator channels [AIAA PAPEN 80-0176] Effect of off-design operation of MHD generators on NO/x/ chemical kinetics [AIAA PAPEN 80-0254] TEIAS UNIV., AUSTIN. Tertiary oil recovery processes research at the University of Texas [BETC-0001-1] TORONTO UNIV. (ONTARIO). The future role of hydrogen fuel in an electrical society [UTIAS-241] TRANSPORTATION AND ECONOMIC RESEARCH ASSOCIATES, INC., ABLINGTON, VA. Disaggregating PIES fuel forecasts, validating PIES transportation model data base, and other technical services [TID-29000] TRW DEPENSE AND SPACE SYSTEMS GROUP, REDONDO BEACH, CALIF. Heat pipe cooled power magnetics [NASA-CR-159659] PEP solar array definition study [NASA-CR-160398] Coal sulfur measurements [PB-299575/1] TRW, INC., CLEVELAND, OBIO.	UTAH UNIV., SALT LAKE CITY.  Elucidation of coal structural components by short residence-time extractive liquefaction 25 p0119 N80-12188  Conference on performance monitoring techniques for evaluation of solar heating and cooling systems [CONF-780432] 25 p0174 N80-15599  VIRGINIA UNIV., CHARLOTTESVILLE.  Experimental and theoretical evaluatiom of a novel concentrating solar energy collection system [SAND-79-1053C] 25 p0144 N80-13671  VON KARMAN INST. FOR PLUID DYNAMICS, RHODE-SAINT-GENESE (BELGIUM).  Pluid Dynamics of Porous Media in Energy Applications, volume 1 [VKI-LEC-SEE-1979-4-VOL-1] 25 p0121 N80-12338  Fluid Dynamics of Porous Media in Energy Applications, volume 2 [VKI-LEC-SEE-1979-4-VOL-2] 25 p0121 N80-12346  Application of packed beds to energy storage use of latent heat of fusion 25 p0121 N80-12353  W  WASHINGTON SCIENTIFIC MARKETING, INC., WASHINGTON, D. C.  Department of Energy workshops on industrial energy conservation reporting [DOE/CS-1830-T3] 25 p0099 N80-10635  WASHINGTON STATE UNIV., PULLMAN.  Comparison of geothermal energy with coal, oil, and natural gas for selected uses [DOE/ET-27139-1] 25 p0123 N80-12558

WEGHAN CO., INC., BUFFALO, H. Y.

Methane recovery from sanitary landfills; gas recovery system installation and testing [PB-296622/4] 25 p0107 N80-11254

WEST VIRGINIA UNIV., MORGANTONN.

Effect of vertical scale distortion on the temperature field of a thermal-hydraulic model [PB-297274/3] 25 p0108 N80-11551

WESTINGHOUSE ELECTRIC CORP., EDDYSTONE, PA.

Screening evaluation of novel power cycles integrated with gasification plants [EPRI-AF-1002] 25 p0096 N80-10605

WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.

Conceptual design of a Demonstration Tokamak Bybrid Reactor (DTHR) [WFS-THE-107] 25 p0132 N80-12898

WESTINGHOUSE RESEARCH AND DEVELOPMENT CENTER, PITTSBURGH, PA.

Performance monitoring of an off-peak heating and cooling system utilizing thermal storage and solar augmented heat pump [EPRI-ER-845] 25 p0102 N80-10662

WHARTON (E. F. A.), INC., PHILADELPHIA, PA.

Wharton annual energy model: Development and simulation results [EPRI-EA-1115] 25 p0175 N80-15606

WILLIAMS (O. G.) AND SKAGGS (R. L.), LAS VEGAS, NEV.

Solar parabolic trough forming process [ALO-4158-1] 25 p0116 N80-11626

WISCONSIN UNIV. - HADISON.

Newton's method for generalized equations and the PIES energy model 25 p0149 N80-13872

WISCONSIN UNIV. CENTER SYSTEM, RICE LAKE.

Energy and economic assessment of anaerobic digesters and biofuels for rural waste management [PB-296523/4] 25 p0094 N80-10398

WORLD HETEOROLCGICAL CRGANIZATION, GENEVA (SWITZERLAND).

Climatic variability, marine resources and offshore development 25 p0131 N80-12689

WYLE LABS., INC., HUNTSVILLE, ALA.

Thermal performance evaluation of the Suncatcher SH-11 (liquid) solar collector [NASA-CR-161253] 25 p0156 N80-14497

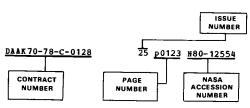
Results of thermal performance evaluation of the Owens-Illinois sunpack liquid solar collector at indoor conditions [NASA-CR-161189] 25 p0156 N80-14500

# CONTRACT NUMBER INDEX

ENERGY /A Continuing Bibliography (Issue 25)

**APRIL 1980** 

#### Typical Contract Number Index Listing



istings in this index are arranged alphanumerically by contract number. Under ach contract number, the accession numbers denoting documents that have been produced as a result of research done under that contract are arranged assending order with the IAA accession numbers appearing first. The occession number denotes the number by which the citation is identified in their the IAA or STAR section. Preceding the accession number are the issue and page number in the particular supplement in which the citation may be bound.

		_	•	P	v	~	J	74	v	v		_	~	J.	•	
P	p	R	O.	ı _	3	1	4 4	5								
	_	2	5	'n	01	5	7	N	Ω	Λ_	. 1	'n	=	A E		
								Į,	v	0-	•	7	J	٠.	,	
r (	. 4	9	- 1	1)	-7	8	9									
		2	5	р	00	19	7	N	8	0-	- 1	0	6	16	5	
		2	5	D	01	6	2	N	8	0-	- 1	4	5	51	3	
		Ξ.	חסו	Œ	40	=	Ξ.	. 2	_	-		•	_	-		
	-			-	74		·		_				_			
			5		01						• 7	1	6	3(	)	
Y-	7	6	-0	:-	03	-	0 1	16	7							
		2	5	р	00	7	9	A	8	0-	- 1	9	5	90	•	
	c	5	ā_	.5	6-	ċ	_,	'n	1	'n		-	_			
3.0													_			
		2	J	P	00	•	Z	A	ö	U-	•	ı	8	b I	ı	
A A	K				7-			)2	2	2						
		2	5	p	01	3	9	N	8	0-	- 1	3	6	25	5	
	v	7	ā.	. 5	8-	č						_	_			
												_	_			
					01								Э.	٦ı	ŧ	
е-	À	В	29	-(	76	Ε	I-	-2	0	37	0	)				
		2	5	D	01	7	0	N	8	0-	- 1	5	4	22	2	
R-	. 1	ċ	<u>_</u> 1	î.	01 79	P	v -	. 1	ñ	۸í	я					
•	-	ິ	-	_	~ 4	7			č	ž.	4	`~	٠,	^ 1		
_		4	⊋.	₽	01 76	v	4	N	0	<u>-</u> -	' '	v	′	U	•	
E-	Δ	c	04	۱–	76	D	P-	.0	0	78	19					
		2	5	р	01 01	4	6	N	8	0-	. 1	3	6	93	3	
		2	5	'n	01	4	6	N	A	ი-	. 1	3	6	9.5	₹.	
		5	Ĕ	2	^1	2	ž	17	ă	۸ <sub>-</sub>		ĕ	3	20	í	
		-	2	P	01 01 01	0	′	N	•	۰-		2	۷.	24		
		2	5	P	01	7	1	N	8	0-	. 1	5	5	66	•	
		2	5	р	01	7	2	N	8	0-	. 1	5	5.	78	3	
2-	Α	c	04	÷	76	n	PΩ	n	7	89	٠					
-	••				00					ŏ-		2		20	,	
								A	2	ŭ-	•	~	*	20	•	
		2	5	P	00	6	5	A	8	0-	1	В	5	5		
		2	5	p	00	7	4	A	8	0-	٠1	8	9	90	)	
2-	A	c	20	) <u> –                                   </u>	79	L	C 1	0	0	20	1					
		้า	5	_	00	۵	5		à	n_	. ว	n	4	57		
_		_		ь	70	-	_	<u>n</u>	~	20	-	٠	٠,	,,	•	
-	A	C	ا ب	-	76	П	Ľ-	·U	2	ZU	' !	_	_			
		2	5	p	01	4	9	N	8	0-	1	3	7.	35	•	
3-	A	C	21	÷	01 78	M	c-	0	8	80	9					
		2	5	n	00 79	q	3	N	R	n-	1	O	31	87	,	
<b>.</b>		~	٠.	Р	70	, m	<u>.</u>	ິ	ž	ວດ	÷	•	•	٠.		
	A	-	_,	_	19	2		-	٠.	-	' '	_				
		2	5	P	00	6	9	A	8	0-	1	8	5	BE	,	
3-	A	1	01	-	00 79	E	T-	2	0	30	7					
		2	5	D	01	5	5	N	8	0-	1	4	4	9 1		
٠.		7	, ,	-	01 79	č		<u></u>	ñ	ຣັກ	Ė	•		•		
	4		v 3	_	13	۵.	ť. –		٠.	Ž	۰	_				
		2	5	₽	01	4.	3	Ņ	8	υ-	1	3	6 (	b		
3-	A	И	03	-	76	S	FΟ	0	4	72						
		2	5	р	ดด	5	3	A	8	o-	1	7	7	10	•	
٠.	۰	č	ر م	_	00 78	~		3	ň	26	1	•	-			
	g	Ċ	U4	_	10	-	۵-	3	*	20	•	_				
				P	00	7	U	A	ö	U	1	8	5	y 1		
3 N	3	-	1													
	-			n	01	2	2	N	8	o-	1	2	5	5 1		
7 37	,	-	э 32	۲	٠.	-	-	T.	_	-	•	_		•		
, M					•	_	_		_	_		٦.				
		2	5	p	01	5	U	N	ď	<b>u</b> -	1	3	98	59	1	
2 N	3	_	54													

25 p0167 N80-15263

25 p0096 N80-10603

RN3-54

F PROJ. 2303

25 p0123 N80-12553

```
DI-BM-H0155092
25 p0137 N80-13601
DI-G-ET-79-11270
      25 p0 180 N80-15691
DI-14-34-0001-6214
25 p0108 N80-11551
DOE TASK 3403,01
25 p0005 A80-11339
DOE-07-7149
25 p0046 A80-16799
DOT-CG-81-76-1476
      25 p0 149 N80-13754
DOT-TSC-RA-76-48
25 p0166 N80-14976
DOT-UT-9002
      25 p0133 N80-12962
DSHS-8072-FGF-10432
25 p0067 A80-18574
E(04-3)-1203
      25 p0006 A80-11368
E(11-1)-2588
      25 p0020 A80-12426
25 p0020 A80-12427
      25 p0070 A80-18590
E(11-1)-3237
25 p0058 A80-17876
E(49-18)-1800
      25 p0135 N80-13287
25 p0135 N80-13291
E (49-18) -2234
      25 p0038 A80-14795
E (49-26) - 1059
25 p0138 N80-13623
EA-77-A-01-6010
25 p0121 N80-12300
EC-75-F-01-8072
     25 p0118 N80-11941
EC-76-C-01-8662
25 p0114 N80-11606
EC-77-A-29-1010
25 p0 109 N80-11558
EC-77-A-31-1011
     25 p0118 N80-11954
EC-77-A-31-1034
     25 p0171 N80-15560
EC-77-A-31-1035
     25 p0164 N80-14572
EC-77-A-31-1062
25 p0138 N80-13624
EC-77-A-31-10040
25 p0150 N80-13989
EC-77-C-01-2165
25 p0129 N80-12606
EC-77-C-01-5043
     25 p0157 N80-14510
```

EC-77-C-01-5056
25 p0110 N80-11573 EC-77-C-01-8578
EC-77-C-01-8578
25 p0114 N80-11612 BC-77-C-05-5523
25 p0173 N80-15590
EC-77-S-02-4372 25 p0165 N80-14587
EC-77-S-04-3992
25 p0172 N80-15582
EC-77-X-01-2752
25 p0092 N80-10383 EE-76-C-02-4234
25 p0168 N80-15278
EE-77-C-01-6119
25 p0098 N80-10629 EE-77-S-02-4204
25 p0151 N80-14266
25 p0151 N80-14266 EE-77-S-02-4447
25 p0151 N80-14266 EE-77-S-02-4548
25 p0151 N80-14266
EEC-07076-EHP
25 p0042 A80-15993 EEF-77-C-03-1481
25 p0062 A80-18240
EF-76-C-05-5301
25 p0108 N80-11545
EF-77-A-01-2593 25 p0155 N80-14493
EF-77-A-01-2674
25 p0095 N80-10595 25 p0166 N80-14922
25 p0166 N80-14922 EF-77-C-01-1207
25 p0089 A80-20913
EF-77-C-01-2621 25 p0119 N80-12163
25 p0119 N80-12163 EF-77-01-2519
25 p0062 A80-18242
25 p0064 A80-18353
EG-76-C-01-4065
25 p0147 N80-13711 25 p0147 N80-13713
EG-77-C-01-2522
25 p0127 N80-12591
25 p0129 N80-12607
25 p0160 N80-14539 EG-77-C-01-4000
25 p0120 N80-12202
EG-77-C-01-4016
25 p0132 N80-12707 25 p0149 N80-13747
EG-77-C-01-4022
25 p0162 N80-14559
EG-77-C-01-4024 25 p0101 N80-10657
25 p0154 N80-14478
25 p0163 N80-14566
EG-77-C-01-4042 25 p0018 A80-11991
25 p0102 N80-10663
25 p0113 N80-11598
25 p0113 N80-11602 25 p0115 N80-11617
25 p0124 N80-12564
25 p0124 N80-12565
25 p0126 N80-12578 25 p0132 N80-12710
25 p0140 N80-13635
25 p0141 N80-13649
25 p0143 N80-13669 25 p0144 N80-13674
25 p0144 N80-13674 25 p0146 N80-13699
25 p0151 N80-14269
25 p0158 N80-14518
25 p0158 N80-14519 25 p0158 N80-14520
25 p0161 N80-14546
25 p0161 N80-14547
25 p0161 N80-14548

25 p0165 N80-14617

```
25 p0172 N80-15570
       25 p0172 N80-15571
25 p0172 N80-15583
       25 p0178 N80-15639
 EG-77-C-01-4049
       25 p0069 A80-18589
25 p0101 N80-10659
       25 p0126 N80-12585
 EG-77-C-01-4064
 25 p0128 N80-12600
EG-77-C-01-4065
       25 p0142 N80-13655
 EG-77-C-01-4101
25 p0093 N80-10389
25 p0093 N80-10393
EG-77-C-02-4395
       25 p0040 A80-15358
 EG-77-C-02-4544
       25 p0059 A80-17888
25 p0132 N80-12898
EG-77-C-02-4557
25 p0143 N80-13670
EG-77-C-03-1467
25 p0067 A80-18573
EG-77-C-03-1576
25 p0018 A80-11989
EG-77-C-03-1590
25 p0101 N80-10654
EG-77-C-03-1605
25 p0146 N80-13700
EG-77-C-04-3787
25 p0174 N80-15597
EG-77-C-04-3974/EFT-5
25 p0066 A80-18561
EG-77-C-1979
25 p0046 A80-16786
EG-77-G-04-4089
25 p0127 N80-12593
EG-77-G-04-4158
25 p0116 N80-11626
EG-77-G-05-5550
       25 p0162 N80-14553
EG-77-S-02-4479
25 p0101 N80-10655
EG-77-S-02-4546
      25 p0101 N80-10652
25 p0101 N80-10653
25 p0101 N80-10656
25 p0101 N80-10656
25 p0144 N80-13672
EG-77-S-02-4577
      25 p0124 N80-12566
25 p0143 N80-13665
EG-77-S-03-1456
25 p0087 A80-20720
EG-77-S-04-4094
25 p0174 N80-15599
EG-77-01-2118
      25 p0022 A80-12735
EI-78-C-01-6346
25 p0139 N80-13633
EM-77-C-01-8962
25 p0104 N80-10965
EM-78-C-01-5058
25 p0173 N80-15591
EM-78-C-03-1735
      25 p0115 N80-11615
25 p0123 N80-12557
25 p0158 N80-14523
      25 p0175 N80-15613
EM-78-C-04-4261
25 p0020 A80-12431
EM-78-C-04-4297
      25 p0171 N80-15569
EM-78-C-04-5319
25 p0102 N80-10660
EM-78-S-02-4628
25 p0158 N80-14516
EMD-77-2202
      25 p0169 N80-15298
EN-77-3-01-6173
      25 p0059 A80-17888
```

#### CONTRACT NUMBER INDEX

	CONTRACT N	OWBER INDEX	
EP-78-C-02-4734	ET-78-S-02-4649	EY-76-C-02-2934	25 p0 174 N80-15600
25 p0151 N80-14266	25 p0147 N80-13707	25 p0129 N80-12609	25 p0175 N80-15601
EP-78-C-03-2057 25 p0151 N80-14266	ET-78-S-02-4713 25 p0088 A80-20889	EY-76-C-02-2950 25 p0010 A80-11846	25 p0175 N80-15602 25 p0176 N80-15622
EP-78-C-05-6020	ET-78-S-02-4878	EY-76-C-02-3073	25 p0176 N80-15623
25 p0151 N80-14266	25 p0146 N80-13694	25 p0006 A80-11347	25 p0177 N80-15624
EPA PROJ. EHE624A	ET-78-S-05-5912 25 p0168 N80-15277	25 p0006 A80-11349 25 p0040 A80-15532	25 p0177 N80-15627 25 p0178 N80-15637
25 p0165 N80-14590 25 p0165 N80-14591	ET-78-X-01-2402	25 p0054 A80-17797	25 p0178 N80-15641
EPA-R-803875	25 p0150 N80-14264	25 p0058 A80-17876	25 p0181 N80-15908
25 p0180 N80-15688	EU-78-C-01-6354 25 p0124 N80-12567	25 p0079 A80-19600 25 p0084 A80-20157	EY-76-C-05-0033 25 p0078 A80-19474
EPA-R-804457 25 p0094 N80-10398	EW-78-C-21-8089	25 p0084 A80-20158	25 p0122 N80-12544
EPA-R-804836	25 p0135 N80-13290	EY-76-C-02-3093	25 p0127 N80-12594
25 p0094 N80-10396	EW-78-S-19-0001	25 p0080 A80-19620 BY-76-C-02-4094	25 p0127 N80-12595 25 p0179 N80-15670
EPA-T-900591-03 25 p0117 N80-11634	25 p0108 N80-11544 EX-76-A-01-2295	25 p0100 N80-10639	EY-76-C-06-1830
25 p0117 N80-11670	25 p0145 N80-13687	25 p0116 N80-11627	25 p0092 N80-10382
EPA-68-01-1916	EX-76-A-36-1008	25 p0127 N80-12592	25 p0097 N80-10613
25 p0152 N80-14463 25 p0152 N80-14464	25 p0165 N80-14578 BX-76-C-01-1207	25 p0137 N80-13377 25 p0146 N80-13692	25 p0098 N80-10625 25 p0113 N80-11605
25 p0152 N80-14465	25 p0135 N80-13288	25 p0175 N80-15609	25 p0151 N80-14266
25 p0152 N80-14466	EX-76-C-01-1770	25 p0178 N80-15635	25 p0160 N80-14534
25 p0152 N80-14467	25 p0087 A80-20882 EX-76-C-01-1784	25 p0178 N80-15638 BY-76-C-03-0115	25 p0165 N80-14655 EY-76-C-07-1570
25 p0152 N80-14468 EPA-68-01-4380	25 p0106 N80-11248	25 p0168 N80-15276	25 p0102 N80-10661
25 p0001 A80-10029	EX-76-C-01-1800	EY-76-C-03-0167	25 p0112 N80-11595
EPA-68-02-1885	25 p0135 N80-13287	25 p0059 A80-17888 25 p0079 A80-19600	25 p0139 N80-13627 EY-76-C-09-0001
25 p0180 N80-15687 EPA-68-02-2138	25 p0135 N80-13291 EX-76-C-01-2025	BY-76-C-03-0515	25 p0149 N80-13917
25 p0165 N80-14595	25 p0130 N80-12624	25 p0113 N80-11604	EY-76-C-14-2170
EPA-68-02-2162	EX-76-C-01-2098	EY-76-C-03-0700	25 p0119 N80-12147 EY-76-S-02-2577
25 p0179 N80-15676 EPA-68-02-2165	25 p0 135 N80-13283 EX-76-C-01-2247	25 p0163 N80-14563 EY-76-C-03-1331	25 p0163 N80-14568
25 p0169 N80-15294	25 p0119 N80-12191	25 p0174 N80-15596	25 p0176 N80-15616
EPA-68-02-2197	25 p0 135 N80-13289	EY-76-C-04-0053	EY-76-S-02-2858
25 p0131 N80-12637 EPA-68-02-2603	EX-76-C-01-2286 25 p0093 N80-10392	25 p0113 N80-11603 25 p0160 N80-14540	25 p0143 N80-13668 25 p0163 N80-14569
25 p0179 N80-15682	25 p0134 N80-13281	25 p0161 N80-14541	EY-76-S-02-2893
EPA-68-02-2611	EX-76-C-01-2307	25 p0164 N80-14570	25 p0159 N80-14524
25 p0117 N80-11656 EPA-68-02-2622	25 p0106 N80-11249 25 p0134 N80-13280	EY-76-C-04-0613 25 p0108 N80-11384	25 p0174 N80-15595 EY-76-S-02-2948
25 p0004 A80-11140	EX-76-C-01-2337	EY-76-C-04-0789	25 p0043 A80-16148
EPA-68-02-2628	25 p0099 N80-10634	25 p0092 N80-10384	EY-76-S-02-2993
25 p0165 N80-14590 25 p0165 N80-14591	25 p0099 N80-10636 EX-76-C-01-2433	25 p0096 N80-10608 25 p0097 N80-10609	25 p0 173 N80-15584 EY-76-S-02-4051-A002
EPA-68-02-2635	25 p0093 N80-10391	25 p0097 N80-10612	25 p0070 A80-1859;
25 p0120 N80-12204	EX-76-C-01-2434	25 p0097 N80-10616	EY-76-S-03-0034
EPA-68-03-2207	25 p0120 N80-12200 EX-76-C-01-2435	25 p0098 N80-10626 25 p0099 N80-10638	25 p0141 N80-13641 EY-76-S-03-0113
25 p0104 N80-10700 EPA-68-03-2226	25 p0150 N80-14258	25 p0100 N80-10640	25 p0145 N80-13674
25 p0179 N80-15681	EX-76-C-01-2469	25 p0100 N80-10650	EY-76-S-05-4976-A003
EPRI PROJ. 137-1	25 p0120 N80-12199	25 p0111 N80-11580 25 p0111 N80-11581	25 p0020 A80-12430 EY-76-S-06-2221
25 p0175 N80-15604 EPRI PROJ. 440-1	EX-76-C-01-2489 25 p0093 N80-10390	25 p0111 N80-11582	25 p0123 N80-1255
25 p0175 N80-15606	EX-76-C-10-3885	25 p0114 N80-11613	EY-76-S-06-2227
EPRI PROJ. 580-2	25 p0115 N80-11621	25 p0115 N80-11622 25 p0116 N80-11623	25 p0148 N80-1372. 25 p0169 N80-1529.
25 p0114 N80-11607 EPRI PROJ. 804	EX-76-C-2341 25 p0007 A80-11642	25 p0122 N80-12543	EY-77-C-06-1036
25 p0095 N80-10584	EX-76-I-01-1028	25 p0124 N80-12559	25 p0095 N80-10504
EPRI PROJ. 928-4	25 p0170 N80-15553	25 p0124 N80-12563 25 p0125 N80-12571	EY-77-C-1030 25 p0095 N80-10504
25 p0118 N80-11935 EPRI PROJ. 990-3	EY-C-76-03-1132 25 p0017 A80-11987	25 p0125 N80-12572	EY-77-S-2446
25 p0096 N80-10605	EY-76-C-2-2616-A001	25 p0126 N80-12579	25 p0005 A80-11339
EQ9AD499	25 p0007 A80-11643 EY-76-C-02-0016	25 p0127 N80-12590 25 p0128 N80-12597	F29601-76-C-0132 25 p0064 A80-1836
25 p0094 N80-10396 ER-78-C-01063	25 p0006 A80-11369	25 p0129 N80-12608	F33615-76-C-2093
25 p0107 N80-11255	25 p0021 A80-12436	25 p0132 N80-12709	25 p0010 A80-11841
ER-78-S-02-4737	25 p0098 N80-10624 25 p0099 N80-10633	25 p0132 N80-12894 25 p0133 N80-13272	F33615-77-C-2004 25. p0156 N80-14504
25 p0078 A80-19473 ER-78-S-02-4899	25 p0099 880-10033 25 p0101 N80-10651	25 p0137 N80-13272	F33615-77-C-2021
25 p0087 A80-20722	25 p0104 N80-10922	25 p0137 N80-13431	25 p0157 N80-1450
ERDA 31-109-38-3552	25 p0111 N80-11585	25 p0140 N80-13640 25 p0140 N80-13642	F33616-78-C-2077 25 p0046 A80-1679
25 p0011 A80-11851 ES-77-C-02-4149	25 p0117 N80-11639 25 p0129 N80-12610	25 p0141 N80-13644	F44620-75-C-0037
25 p0056 A80-17860	25 p0134 N80-13277	25 p0141 N80-13645	25 p0006 A80-1134
ET-78-C-01-2898	25 p0136 N80-13294	25 p0143 N80-13661	HUD-H-8213G
25 p0113 N80-11599 25 p0142 N80-13656	25 p0139 N80-13632 25 p0141 N80-13650	25 p0144 N80-13671 25 p0144 N80-13675	.25 p0117 N80-1163. JPL PROJ. 5102-117
ET-78-C-02-5022	25 p0142 N80-13651	25 p0146 N80-13693	25 p0155 N80-1449
25 p0172 N80-15576	25 p0142 N80-13654	25 p0146 N80-13697	JPL PROJ. 5102-136
ET-78-C-03-1740 25 p0142 N80-13660	25 p0157 N80-14512 25 p0157 N80-14514	25 p0147 N80-13710 25 p0159 N80-14527	25 p0155 N80-1448. JPL PROJ. 5230-1-REV-
ET-78-C-03-2028	25 p0158 N80-14522	25 p0160 N80-14532	25 p0155 N80-1449
25 p0162 N80-14550	25 p0162 N80-14552	25 p0160 N80-14538	JPL-954328
25 p0162 N80-14551 ET-78-C-03-2180	25 p0167 N80-15227 25 p0170 N80-15346	25 p0162 N80-14558 25 p0169 N80-15288	25 p0154 N80-1448 JPL-954830
25 p0108 N80-11546	25 p0178 N80-15634	25 p0172 N80-15574	25 p0151 N80-1427
ET-78-C-04-4267	25 p0180 N80-15897	25 p0172 N80-15577	JPL-954847
25 p0145 N80-13688	EY-76-C-02-2857 25 p0098 N80-10628	25 p0173 N80-15585 25 p0173 N80-15586	25 p0109 N80-1156

#### CONTRACT NUMBER INDEX

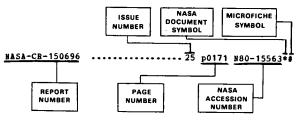
	CONTRACT	NUMBER INDEX	
954854 25 p0110 N80-11565	NSP AER-75-02665	25 p0176 N80-15614	25 p0124 N80-12561
955018	25 p0169 N80-15296 NSF AER-76-19752	25 p0177 N80-15629 25 p0181 N80-15942	25 p0125 N80-12569 25 p0125 N80-12570
25 p0154 N80-14484 955089	25 p0063 A80-18291 NSF CHE-78-18572	W-7405-ENG-26 25 p0015 A80-11966	25 p0126 N80-12586 25 p0126 N80-12588
25 p0109 N80-11561 955115	25 p0053 A80-17710	25 p0017 A80-11984	25 p0127 N80-12589
25 p0065 A80-18553	NSF CISP-78-22989 25 p0166 N80-14962	25 p0021 A80-12440 25 p0054 A80-17789	25 p0128 N80-12596 25 p0130 N80-12625
955116 25 p0069 A80-18586	NSF DMR-84373 25 p0086 A80-20716	25 p0058 A80-17883 25 p0065 A80-18552	25 p0131 N80-12628 25 p0131 N80-12647
25 p0095 N80-10596 955149	NSP ENG-76-02402	25 p0088 A80-20886	25 p0132 N80-12900
25 p0154 N80-14481	25 p0059 A80-18086 NSF ENG-77-21626	25 p0095 N80-10584 25 p0098 N80-10627	25 p0132 N80-12955 25 p0133 N80-12960
25 p0154 N80-14482 ORDER A-437018	25 p0036 A80-14667 NSF ENG-78-06263	25 p0103 N80-10693 25 p0103 N80-10694	25 p0133 N80-12982 25 p0137 N80-13480
25 p0084 A80-20128 ORDER C-25906	25 p0089 A80-20893	25 p0105 N80-11168	25 p0140 N80-13638
25 p0170 N80-15553		25 p0106 N80-11246 25 p0107 N80-11348	25 p0141 N80-13647 25 p0141 N80-13648
-2800 25 p0108 N80-11532	NSP ISP-75-15817 25 p0130 N80-12615	25 p0112 N80-11590 25 p0125 N80-12568	25 p0145 N80-13680 25 p0158 N80-14517
25 p0118 N80-11747	NSF ISP-78-22994	25 p0125 N80-12575	25 p0159 N80-14528
-14698 25 p0106 N80-11238	25 p0118 N80-11965 NSP PCM-76-11655	25 p0126 N80-12580 25 p0128 N80-12598	25 p0159 N80-14529 25 p0160 N80-14533
-9925 25 p0041 A80-15750	25 p0030 A80-12838 NSG-3082	25 p0128 N80-12599	25 p0161 N80-14549
-20058	25 p0032 A80-13116	25 p0128 N80-12602 25 p0130 N80-12613	25 p0 164 N80-14571 25 p0 166 N80-14973
25 p0109 N80-11558 -20596	NSG-3255 25 p0064 A80-18354	25 p0136 N80-13295 25 p0137 N80-13412	25 p0168 N80-15282 25 p0171 N80-15564
25 p0170 N80-15553 -21149	25 p0077 A80-19310	25 p0138 N80-13605	25 p0171 N80-15568
-21149 25 p0151 N80-14386	NSG-7491 25 p0072 A80-18728	25 p0139 N80-13631 25 p0143 N80-13666	25 p0175 N80-15612 25 p0176 N80-15618
-30363 25 p0154 N80-14480	N00014-76-C-0442 25 p0156 N80-14502	25 p0144 N80-13676	25 p0177 N80-15626
-30813	25 p0156 N80-14503	25 p0145 N80-13686 25 p0147 N80-13708	25 p0177 N80-15628 25 p0177 N80-15633
25 p0170 N80-15553 -24232	N00014-78-C-0630 25 p0123 N80-12556	25 p0157 N80-14509 25 p0157 N80-14511	25 p0179 N80-15668 25 p0181 N80-15933
25 p0170 N80-15528 -100	N00014-78-F-0004	25 p0176 N80-15619	25 p0181 N80-15995
25 p0021 A80-12438	25 p0132 N80-12882 N00014-79-C-0318	25 p0176 N80-15620 25 p0177 N80-15625	W-7405-ENG-82 25 p0125 N80-12576
25 p0110 N80-11564 25 p0155 N80-14488	25 p0062 A80-18240 OWRT PROJ. C-7171(6214)(4)	W-7405-ENG-36	25 p0129 N80-12611
25 p0155 N80-14491	25 p0108 N80-11551	25 p0095 N80-10472	25 p0145 N80-13679 25 p0147 N80-13702
25 p0155 N80-14492 -31293	PROJ. 2345 25 p0109 N80-11562	25 p0099 N80-10637 25 p0100 N80-10646	W-7405-ENG-92 25 p0093 N80-10395
25 p0171 'N80-15563 -32036	PROJ. 8987 25 p0174 N80-15597	25 p0108 N80-11543	W-7406-ENG-48
25 p0156 N80-14497	RA-23-216.00.0	25 p0112 N80-11592 25 p0113 N80-11596	25 p0098 N80-10621 W-7409-ENG-38
25 p0156 N80-14500 -32093	25 p0143 N80-13667 RESEARCH PROJ. 408-1	25 p0114 N80-11608 25 p0115 N80-11616	25 p0029 A80-12824 W-7495-ENG-48
25 p0096 N80-10601	25 p0136 N80-13292	25 p0117 N80-11641	25 p0045 A80-16720
25 p0096 N80-10602 25 p0109 N80-11560	W-31-109-ENG-38 25 p0043 A80-16262	25 p0118 N80-11889 25 p0120 N80-12197	2F57571004 25 p0150 N80-14259
-32256 25 p0156 N80-14496	25 p0065 A80-18554 25 p0076 A80-19304	25 p0126 N80-12577 25 p0129 N80-12605	141-95-01-15
-32258	25 p0077 A80-19309	25 p0136 N80-13296	25 p0109 N80-11559 513-52-01-16
25 p0156 N80-14498 -32475	25 p0095 N80-10502 25 p0096 N80-10606	25 p0136 N80-13297 25 p0140 N80-13634	25 p0150 N80-14114 530-04-13-01
25 p0119 N80-12106 -32921	25 p0104 N80-10918 25 p0110 N80-11571	25 p0142 N80-13653 25 p0144 N80-13673	25 p0105 N80-11053 778-17-01
25 p0122 N80-12538	25 p0111 N80-11574	25 p0144 N80-13677	25 p0096 N80-10603
25 p0122 N80-12539 25 p0122 N80-12540	25 p0111 N80-11576 25 p0111 N80-11577	25 p0145 N80-13690 25 p0149 N80-13906	778-35-03 25 p0167 N80-15263
-33387 25 p0096 N80-10604	25 p0112 N80-11586 25 p0112 N80-11587	25 p0151 N80-14346	25 pero. 400 15205
-33608	25 p0115 N80-11619	25 p0159 N80-14526 25 p0160 N80-14535	
25 p0092 N80-10379 -15196	25 p0116 N80-11624 25 p0116 N80-11628	25 p0165 N80-14584 25 p0169 N80-15289	
25 p0086 A80-20641	25 p0124 N80-12562	25 p0171 N80-15565	
-15636 25 p0086 A80-20641	25 p0131 N80-12631 25 p0139 N80-13629	25 p0178 N80-15643 W-7405-ENG-48	
25 p0105 N80-11121 25 p0105 N80-11122	25 p0139 N80-13630 25 p0140 N80-13636	25 p0046 A80-16752 25 p0059 A80-17887	1
25 p0167 N80-15195	25 p0145 N80-13689	25 p0060 A80-18110	
-15755 25 p0096 N80-10600	25 p0146 N80-13695 25 p0146 N80-13696	25 p0075 A80-19049 25 p0085 A80-20453	
-15870 25 p0138 N80-13622	25 p0147 N80-13706 25 p0149 N80-13941	25 p0097 N80-10611	
03-002-171	25 p0150 N80-14263	25 p0097 N80-10619 25 p0098 N80-10623	•
25 p0085 A80-20378 39-087-021	25 p0150 N80-14265 25 p0151 N80-14271	25 p0102 N80-10664 25 p0103 N80-10688	
25 p0028 A80-12816	25 p0159 N80-14525	25 p0103 N80-10689	
-04-6-158-4410 25 p0003 A80-10524	25 p0159 N80-14530 25 p0159 N80-14531	25 p0105 N80-10970 25 p0106 N80-11245	
ROJ. 051-696	25 p0163 N80-14562 25 p0164 N80-14573	25 p0108 N80-11386	
25 p0123 N80-12556 AER-72-03551 25 p0118 N80-11711	25 p0166 N80-14954	25 p0110 N80-11567 25 p0111 N80-11579	
25 p0118 N80-11711 AER-73-03197	25 p0167 N80-15259 25 p0168 N80-15281	25 p0112 N80-11594 25 p0114 N80-11614	
25 p0062 A80-18231	25 p0173 N80-15588	25 p0115 N80-11618	
AER-74-20135 25 p0169 N80-15297	25 p0173 N80-15589 25 p0175 N80-15611	25 p0118 N80-11946 25 p0120 N80-12201	1
•	-		

# REPORT/ACCESSION INDEX

## ENERGY /A Continuing Bibliography (Issue 25)

#### **APRIL 1980**

## Typical Report/ Accession Number Index Listing



Listings in this index are arranged alphanumerically by report number. The issue and page number indicate the actual Supplement and page where the citation may be located. The accession number denotes the number by which the citation is identified. An asterisk (\*) indicates that the item is a NASA report. A pound sign (#) indicates that the item is available on microfiche.

AD-A071157	25 p0139 N80-13625 #
AD-A071242	25 p0123 N80-12553 #
AD-A072435	
AD-A072861	25 p0123 N80-12556 #
AD-A072864	25 p0123 N80-12554 #
AD-A073128	25 p0132 N80-12882 #
AD-A073761	25 p0150 N80-14259 #
AD-A073822	25 p0149 N80-13754 #
AD-A073858	25 p0157 N80-14505 #
AD-A074869	25 p0156 N80-14504 #
AD-A074885	25 p0182 N80-16022 #
AD-A074915	25 p0156 N80-14503 #
AD-A074968	25 p0156 N80-14502 #
AD-E000316	25 p0150 N80-14259 #
## E000310	25 po 150 800 14253 ¥
AED-CONF-78-155-010	25 p0121 N80-12291 #
AED-CONF-78-212-004	25 p0115 N80-11620 #
AED-CONF-78-212-004	
AED-CONF-70-212-011	25 p0130 N80-12614 #
AER-425	25 2225 222 4252 2
AER-425	25 p0094 N80-10400 #
	05 0453 000 40505 0
AFAPL-TR-79-2026	25 p0157 N80-14505 #
AFESC/ESL-TR-79-20	25 p0156 N80-14504 #
AGAR D-AG-243	25 p0103 N80-10683 #
AIAA PAPER 80-0020	25 p0062 A80-18240 #
AIAA PAPER 80-0022	25 p0062 A80-18242 #
AIAA PAPER 80-0023	25 p0063 A80-18243*#
AIAA PAPER 80-0075	25 p0076 A80-19275 #
AIAA PAPER 80-0091	25 p0063 A80-18265 #
AIAA PAPER 80-0148	25 p0064 A80-18366 #
AIAA PAPER 80-0175	25 p0064 A80-18353 #
AIAA PAPER 80-0176	25 p0064 A80-18354*#
- <del>-</del>	25 p0064 A80-18355 #
AIAA PAPER 80-0210	25 p0064 A80-18378 #
AIAA PAPER 80-0212	25 p0064 A80-18379 #
AIAA PAPER 80-0250	25 p0076 A80-19304 #
AIAA PAPER 80-0253	25 p0077 A80-19309 #
AIAA PAPER 80-0254	25 p0077 A80-19310*#
AIAA PAPER 80-0280	25 p0077 A80-19311 #
AIAA PAPER 80-0284	25 p0063 A80-18291 #
AIAA PAPER 80-0292	25 p0063 A80-18297*#
AIAA PAPER 80-0293	25 p0063 A80-18298*#
AIAA PAPER 80-0294	25 p0063 A80-18299 #
AIAA PAPER 80-0296	25 p0063 A80-18300 #
AIAA PAPER 80-0297	25 p0063 A80-18301 #
AIAA PAPER 80-0302	25 p0064 A80-18303*#
	•
AIAA PAPER 80-0400	25 p0077 A80-19327 #
	•

AIAA PAPER 80-0402	25	20077	100 10000 #
AIAA PAPEE 80-0402	25	p0077	A80-19328 #
ALC-3787-4	25	p0174	N80-15597 #
	25	P0174	
		p0116	
ALO-5319-2	25	p0102	N80-10660 #
ALW-11	25	p0137	N80-13601*#
ADW 11	23	PO 137	# +1 00C1 -03
ANI-ICES-TM-28	25	p0111	N80-11574 #
### 1020 III to ********************************	23	Porti	MOU-11374 &
ANL-PMS-79-2-VOL-7	25	p0139	N80-13629 #
ANL-PMS-79-2-VOL-8	25	p0139	N80-13630 #
ANL-PMS-79-2-VCL-11	25	p0124	N80-12562 #
		F	
ANL/CES/TE-78-7	25	p0095	N80-10502 #
ANL/CES/TE-79-2	25	p0150	N80-14263 #
ANL/CNSV/TM-2	25	p0159	N80-14525 #
ANL/EES-CP-30	25	p0115	N80-11619 #
ANI/EES-TM-28	25	p0111	N80-11576 #
ANL/FES-TM-32	25	p0111	N80-11577 #
ANL/EES/TM-38	25	p0151	N80-14271 #
ANL/ES-76	25	p0140	N80-13636 #
ANL/FPP-78-4	25	p0149	N80-13941 #
ANL/FPP/TM-119	25	p0104	N80-10918 #
ANI/ICES-TM-26	25	p0173	N80-15589 #
ANL/ICES-TM-27	25	p0110	N80-11571 #
ANL/ICES-TM-30	25	p0173	N80-15588 #
ANL/MHD-78-11	25	p0181	N80-15942 #
ANL/MHD-79-1	25	p0132	N80-12882 #
• ,		-	
APL/JHU/EQR-79-2 APL/JHU/GFMS-003 APL/JHU/CM-79-002	25	p0179	N80-15648 #
APL/JHU/GEMS-003	25	p0165	N80-14578 #
APL/JHU/CM-79-002	25	p0165	N80-14578 #
*			
APR-5	25	p0133	N80-12957*#
1 D 2			
AR-3	25	p0136	N80-13292 #
		-	
AR-3		p0136 p0174	
AR/IA/79-27	25	p0174	N80-15594 #
		p0174	
AB/IA/79-27	25 25	p0174	N80-15594 # N80-10616 #
AE/IA/79-27	25 25 25	p0174 p0097 p0041	N80-15594 # N80-10616 # A80-15705 #
AB/IA/79-27 ASA-78-06 ASME PAPER 79-DET-9 ASME PAPER 79-DET-71	25 25 25 25 25	p0174 p0097 p0041 p0041	N80-15594 # N80-10616 # A80-15705 # A80-15729 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44	25 25 25 25 25 25	p0174 p0097 p0041 p0041 p0039	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267*#
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-HA/APC-10	25 25 25 25 25 25 25	p0174 p0097 p0041 p0041 p0039 p0071	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267*# A80-18623 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/APC-10  ASME PAPER 79-WA/APC-10	25 25 25 25 25 25 25 25	p0174 p0097 p0041 p0041 p0039 p0071 p0071	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267*# A80-18623 # A80-18644 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/APC-10  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-5	25 25 25 25 25 25 25 25 25	p0174 p0097 p0041 p0041 p0039 p0071 p0071 p0071	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267*# A80-18623 # A80-18645 # A80-18645 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/APC-10  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-5	25 25 25 25 25 25 25 25 25 25	p0174 p0097 p0041 p0041 p0039 p0071 p0071 p0071	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267*# A80-18623 # A80-18644 # A80-18646 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6	25 25 25 25 25 25 25 25 25	p0174 p0097 p0041 p0041 p0039 p0071 p0071 p0071 p0071	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267*# A80-18623 # A80-18624 # A80-18645 # A80-18645 # A80-18645 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/APC-10  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ET-3  ASME PAPER 79-WA/ET-3	25 25 25 25 25 25 25 25 25 25 25 25	P0174 P0097 P0041 P0041 P0039 P0071 P0071 P0071 P0071 P0070 P0070	N80-15594 # N80-10616 # A80-15705 # A80-15705 # A80-15267*# A80-18623 # A80-18644 # A80-18645 # A80-18646 # A80-18620 # A80-18637 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/APC-10  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ET-3  ASME PAPER 79-WA/ET-3	25 25 25 25 25 25 25 25 25 25 25 25 25 2	p0174 p0097 p0041 p0041 p0039 p0071 p0071 p0071 p0070 p0071 p0070	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267*# A80-18623 # A80-18644 # A80-18646 # A80-18646 # A80-18637 # A80-18637 # A80-18639 #
AB/IA/79-27  ASAE PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/APC-10  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-1  ASME PAPER 79-WA/ENER-3  ASME PAPER 79-WA/ENER-3  ASME PAPER 79-WA/ENER-3  ASME PAPER 79-WA/ENER-3  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-31	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0039 P0071 P0071 P0071 P0071 P0070 P0070	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267*# A80-18623 # A80-18644 # A80-18646 # A80-18646 # A80-18637 # A80-18637 # A80-18639 #
AB/IA/79-27  ASAE PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/APC-10  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-1  ASME PAPER 79-WA/ENER-3  ASME PAPER 79-WA/ENER-3  ASME PAPER 79-WA/ENER-3  ASME PAPER 79-WA/ENER-3  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-31	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0071 P0071 P0071 P0070 P0077 P0077 P0077 P0077	N80-15594 # N80-10616 # A80-15705 # A80-15705 # A80-15267*# A80-18624 # A80-18645 # A80-18645 # A80-18645 # A80-18647 # A80-18637 # A80-18637 # A80-18637 # A80-18637 # A80-18637 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-18  ASME PAPER 79-WA/ET-31  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-35  ASME PAPER 79-WA/HT-36  ASME PAPER 79-WA/HT-36	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0071 P0071 P0071 P0070 P0071	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267*# A80-18623 # A80-18644 # A80-18646 # A80-18647 # A80-18631 # A80-18593 # A80-18593 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-18  ASME PAPER 79-WA/ET-31  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-35  ASME PAPER 79-WA/HT-36  ASME PAPER 79-WA/HT-36	25 25 25 25 25 25 25 25 25 25 25 25 25 2	p0174 p0097 p0041 p0041 p0071 p0071 p0071 p0071 p0070 p0071 p0070 p0070 p0071	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267 # A80-18623 # A80-18644 # A80-18645 # A80-18645 # A80-18646 # A80-18631 # A80-18582 # A80-18582 #
AB/IA/79-27  ASAE PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-HA/APC-10  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/EN-6  ASME PAPER 79-WA/EN-13  ASME PAPER 79-WA/EN-13  ASME PAPER 79-WA/HT-18  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-33  ASME PAPER 79-WA/HT-37  ASME PAPER 79-WA/HT-37	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0041 P0071 P0071 P0071 P0070 P0071 P0070 P0071 P0070 P0071 P0070	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-18623 # A80-18624 # A80-18645 # A80-18645 # A80-18646 # A80-18637 # A80-18637 # A80-18637 # A80-18595 # A80-18595 # A80-18626 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ET-3  ASME PAPER 79-WA/ET-31  ASME PAPER 79-WA/ET-31  ASME PAPER 79-WA/ET-31  ASME PAPER 79-WA/ET-37	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0039 P0071 P0071 P0071 P0070 P0071 P0070 P0070 P0070 P0070 P0070	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267*# A80-18623 # A80-18644 # A80-18646 # A80-18637 # A80-18637 # A80-18631 # A80-18593 # A80-18593 # A80-18596 #
AB/IA/79-27  ASAE PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-HA/APC-10  ASME PAPER 79-HA/APC-10  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENT-18  ASME PAPER 79-WA/ET-18  ASME PAPER 79-WA/ET-18  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-37  ASME PAPER 79-WA/HT-38  ASME PAPER 79-WA/HT-38  ASME PAPER 79-WA/HT-38  ASME PAPER 79-WA/SOL-1  ASME PAPER 79-WA/SOL-1	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0041 P0071 P0071 P0071 P0070 P0071 P0070 P0071 P0070 P0071 P0070	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267 # A80-18623 # A80-18644 # A80-18645 # A80-18640 # A80-18631 # A80-18631 # A80-18582 # A80-18582 # A80-18595 # A80-18595 # A80-18596 # A80-18596 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9 ASME PAPER 79-DET-71 ASME PAPER 79-HA/SEC-10 ASME PAPER 79-WA/APC-10 ASME PAPER 79-WA/ENER-5 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-3 ASME PAPER 79-WA/ENER-3 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-33 ASME PAPER 79-WA/HT-33 ASME PAPER 79-WA/HT-36 ASME PAPER 79-WA/HT-36 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-38 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-38 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-38 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-2 ASME PAPER 79-WA/SOL-2	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0039 P0071 P0071 P0071 P0070 P0071 P0070 P0071 P0070 P0068 P0071 P0070 P0066	N80-15594 # N80-10616 # A80-15705 # A80-15729 # A80-15267 # A80-18623 # A80-18644 # A80-18646 # A80-18646 # A80-18647 # A80-18637 # A80-18637 # A80-18595 # A80-18595 # A80-18595 # A80-18657 # A80-18657 # A80-18657 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ET-31  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-37  ASME PAPER 79-WA/SOL-1  ASME PAPER 79-WA/SOL-3	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0039 P0071 P0071 P0071 P0070 P0071 P0070 P0071 P0070 P0066 P0066 P0066 P0066	N80-15594 #  N80-15594 #  A80-15705 #  A80-15729 #  A80-15267 #  A80-18623 #  A80-18644 #  A80-18645 #  A80-18640 #  A80-18631 #  A80-18631 #  A80-18631 #  A80-18585 #  A80-18585 #  A80-18595 #  A80-18595 #  A80-18596 #
ABMIA/79-27  ASAE PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-HA/APC-10  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ET-18  ASME PAPER 79-WA/ET-18  ASME PAPER 79-WA/HT-18  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-37  ASME PAPER 79-WA/HT-38  ASME PAPER 79-WA/SOL-1  ASME PAPER 79-WA/SOL-1  ASME PAPER 79-WA/SOL-2  ASME PAPER 79-WA/SOL-4  ASME PAPER 79-WA/SOL-4  ASME PAPER 79-WA/SOL-4  ASME PAPER 79-WA/SOL-4  ASME PAPER 79-WA/SOL-6	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0039 P0071 P0071 P0071 P0070 P0071 P0070 P0071 P0070 P0070 P0070 P0070 P0066 P0067	N80-15594 #  N80-15594 #  A80-15705 #  A80-15705 #  A80-15729 #  A80-15729 #  A80-18623 #  A80-18624 #  A80-18644 #  A80-18645 #  A80-18637 #  A80-18637 #  A80-18593 #  A80-18593 #  A80-18593 #  A80-18593 #  A80-18595 #  A80-18582 #  A80-18585 #  A80-18593 #  A80-18593 #  A80-18593 #  A80-18593 #  A80-18593 #  A80-18593 #  A80-18595 #  A80-18595 #  A80-18595 #  A80-18595 #
ABA-78-06  ASME PAPER 79-DET-9 ASME PAPER 79-DET-71 ASME PAPER 79-DET-71 ASME PAPER 79-HA/SEC-10 ASME PAPER 79-WA/SOL-2 ASME PAPER 79-WA/ENER-5 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-3 ASME PAPER 79-WA/ENER-3 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-33 ASME PAPER 79-WA/HT-36 ASME PAPER 79-WA/HT-36 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-38 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-2 ASME PAPER 79-WA/SOL-4 ASME PAPER 79-WA/SOL-6 ASME PAPER 79-WA/SOL-6 ASME PAPER 79-WA/SOL-6 ASME PAPER 79-WA/SOL-6 ASME PAPER 79-WA/SOL-7	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0039 P0071 P0071 P0071 P0070 P0071 P0070 P0071 P0070 P0066 P0066 P0066 P0066	N80-15594 #  N80-15594 #  A80-15616 #  A80-15705 #  A80-15729 #  A80-15267 #  A80-18623 #  A80-18644 #  A80-18646 #  A80-18631 #  A80-18637 #  A80-18593 #  A80-18593 #  A80-18596 #  A80-18565 #  A80-18585 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9 ASME PAPER 79-DET-71 ASME PAPER 79-ENAS-44 ASME PAPER 79-WA/ENER-4 ASME PAPER 79-WA/ENER-5 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/EN-18 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-36 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-2 ASME PAPER 79-WA/SOL-4 ASME PAPER 79-WA/SOL-4 ASME PAPER 79-WA/SOL-7	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0031 P0071 P0071 P0071 P0070 P0071 P0070 P0077 P0066 P0066 P0066 P0066	N80-15594 #  N80-15594 #  A80-15705 #  A80-15729 #  A80-15267 #  A80-18623 #  A80-18644 #  A80-18646 #  A80-18620 #  A80-18631 #  A80-18631 #  A80-18631 #  A80-18592 #  A80-18595 #  A80-18594 #  A80-18585 #
ASME PAPER 79-DET-9 ASME PAPER 79-DET-71 ASME PAPER 79-DET-71 ASME PAPER 79-HA/APC-10 ASME PAPER 79-HA/APC-10 ASME PAPER 79-WA/ENER-4 ASME PAPER 79-WA/ENER-5 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ET-18 ASME PAPER 79-WA/ET-18 ASME PAPER 79-WA/HT-18 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-3 ASME PAPER 79-WA/SOL-4 ASME PAPER 79-WA/SOL-4 ASME PAPER 79-WA/SOL-6 ASME PAPER 79-WA/SOL-7 ASME PAPER 79-WA/SOL-7 ASME PAPER 79-WA/SOL-7 ASME PAPER 79-WA/SOL-7 ASME PAPER 79-WA/SOL-8 ASME PAPER 79-WA/SOL-9	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0039 P0071 P0071 P0070 P0071 P0070 P0071 P0070 P0068 P0070 P0066 P0067 P0066 P0066 P00669 P00669	N80-15594 #  N80-15594 #  A80-15705 #  A80-15729 #  A80-15267 #  A80-18623 #  A80-18645 #  A80-18646 #  A80-18647 #  A80-18637 #  A80-18637 #  A80-18595 #  A80-18595 #  A80-18595 #  A80-18595 #  A80-18596 #  A80-18586 #
AB/IA/79-27  ASA-78-06  ASME PAPER 79-DET-9 ASME PAPER 79-DET-71 ASME PAPER 79-DET-71 ASME PAPER 79-WA/ENER-4 ASME PAPER 79-WA/ENER-5 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/EN-31 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-36 ASSE PAPER 79-WA/HT-36 ASSE PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-2 ASME PAPER 79-WA/SOL-4 ASME PAPER 79-WA/SOL-7 ASME PAPER 79-WA/SOL-9	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0071 P0071 P0071 P0071 P0070 P0071 P0070 P0071 P0070 P0066 P0067 P0069 P0069 P0069 P0066	N80-15594 #  N80-15594 #  A80-15616 #  A80-15705 #  A80-15729 #  A80-15267*#  A80-18623 #  A80-18644 #  A80-18646 #  A80-18631 #  A80-18637 #  A80-18593 #  A80-18593 #  A80-18595 #  A80-18565 #  A80-18565 #  A80-18565 #  A80-18565 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18586 #  A80-18586 #  A80-18586 #  A80-18584 #  A80-18564 #
ABAIA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-ENAS-44  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/EN-3  ASME PAPER 79-WA/EN-31  ASME PAPER 79-WA/EN-36  ASME PAPER 79-WA/EN-37  ASME PAPER 79-WA/EN-38  ASME PAPER 79-WA/EN-38  ASME PAPER 79-WA/SOL-1  ASME PAPER 79-WA/SOL-1  ASME PAPER 79-WA/SOL-2  ASME PAPER 79-WA/SOL-4  ASME PAPER 79-WA/SOL-7  ASME PAPER 79-WA/SOL-8  ASME PAPER 79-WA/SOL-10  ASME PAPER 79-WA/SOL-10  ASME PAPER 79-WA/SOL-10  ASME PAPER 79-WA/SOL-11	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0041 P0071 P0071 P0071 P0070 P0071 P0070 P0077 P0066 P0066 P0066 P0066 P0066 P0066 P0066 P0066	N80-15594 #  N80-15594 #  A80-15616 #  A80-15705 #  A80-15729 #  A80-15267*#  A80-18623 #  A80-18644 #  A80-18646 #  A80-18631 #  A80-18637 #  A80-18593 #  A80-18593 #  A80-18595 #  A80-18565 #  A80-18565 #  A80-18565 #  A80-18565 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18586 #  A80-18586 #  A80-18586 #  A80-18584 #  A80-18564 #
ASME PAPER 79-DET-9 ASME PAPER 79-DET-71 ASME PAPER 79-DET-71 ASME PAPER 79-HA/APC-10 ASME PAPER 79-HA/APC-10 ASME PAPER 79-WA/ENER-4 ASME PAPER 79-WA/ENER-5 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENT-3 ASME PAPER 79-WA/HT-18 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-2 ASME PAPER 79-WA/SOL-4 ASME PAPER 79-WA/SOL-7 ASME PAPER 79-WA/SOL-7 ASME PAPER 79-WA/SOL-8 ASME PAPER 79-WA/SOL-9 ASME PAPER 79-WA/SOL-9 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-9 ASME PAPER 79-WA/SOL-1	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0039 P0071 P0071 P0070 P0071 P0070 P0071 P0070 P0067 P0066 P0067 P0066 P0069 P0066 P0069 P0066	N80-15594 #  N80-15594 #  A80-15705 #  A80-15705 #  A80-15729 #  A80-18623 #  A80-18624 #  A80-18644 #  A80-18646 #  A80-18637 #  A80-18637 #  A80-18593 #  A80-18593 #  A80-18582 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18593 #  A80-18580 #  A80-18580 #  A80-18580 #  A80-18593 #  A80-18569 #  A80-18569 #  A80-18569 #  A80-18559 #  A80-18585 #
ABA-78-06  ASME PAPER 79-DET-9 ASME PAPER 79-DET-71 ASME PAPER 79-DET-71 ASME PAPER 79-DET-71 ASME PAPER 79-WA/SDC-10 ASME PAPER 79-WA/ENER-4 ASME PAPER 79-WA/ENER-5 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/EN-31 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-33 ASME PAPER 79-WA/HT-36 ASME PAPER 79-WA/HT-36 ASME PAPER 79-WA/HT-36 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-38 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-2 ASME PAPER 79-WA/SOL-2 ASME PAPER 79-WA/SOL-4 ASME PAPER 79-WA/SOL-7 ASME PAPER 79-WA/SOL-7 ASME PAPER 79-WA/SOL-7 ASME PAPER 79-WA/SOL-7 ASME PAPER 79-WA/SOL-1	25 25 255 225 225 225 225 225 225 225 2	P0174 P0097 P0041 P0041 P0071 P0071 P0071 P0071 P0070 P0071 P0070 P0071 P0070 P0066 P0067 P0067 P0069 P0067 P0069 P0067 P0069	N80-15594 #  N80-15594 #  A80-15616 #  A80-15705 #  A80-15729 #  A80-15267 #  A80-18623 #  A80-18644 #  A80-18646 #  A80-18637 #  A80-18637 #  A80-18637 #  A80-18593 #  A80-18593 #  A80-18593 #  A80-18565 #  A80-18566 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18585 #  A80-18586 #  A80-18585 #  A80-18585 #  A80-18584 #  A80-18553 *  A80-18553 *  A80-18553 *  A80-18553 *
ABAIA/79-27  ASA-78-06  ASME PAPER 79-DET-9  ASME PAPER 79-DET-71  ASME PAPER 79-DET-71  ASME PAPER 79-HA/SEC-10  ASME PAPER 79-WA/ENER-4  ASME PAPER 79-WA/ENER-5  ASME PAPER 79-WA/ENER-6  ASME PAPER 79-WA/ET-31  ASME PAPER 79-WA/HT-31  ASME PAPER 79-WA/HT-37  ASME PAPER 79-WA/HT-36  ASME PAPER 79-WA/HT-37  ASME PAPER 79-WA/SOL-1  ASME PAPER 79-WA/SOL-1  ASME PAPER 79-WA/SOL-4  ASME PAPER 79-WA/SOL-4  ASME PAPER 79-WA/SOL-7  ASME PAPER 79-WA/SOL-7  ASME PAPER 79-WA/SOL-1  ASME PAPER 79-WA/SOL-11   2 5 25 25 25 25 25 25 25 25 25 25 25 25	P0174 P0097 P0041 P0041 P0039 P0071 P0071 P0071 P0070 P0071 P0070 P0071 P0070 P0066	N80-15594 #  N80-15594 #  A80-15705 #  A80-15729 #  A80-15729 #  A80-18623 #  A80-18644 #  A80-18646 #  A80-18620 #  A80-18631 #  A80-18631 #  A80-18631 #  A80-18530 #  A80-18592 #  A80-18596 #  A80-18592 #  A80-18585 #  A80-18586 #  A80-18586 #  A80-18586 #  A80-18586 #  A80-18586 #  A80-18553 #  A80-18579 #  A80-18579 #  A80-18579 #  A80-18579 #  A80-18579 #  A80-18581 #  A80-18581 #	
ABAIA/79-27  ASA-78-06  ASME PAPER 79-DET-9 ASME PAPER 79-DET-71 ASME PAPER 79-DET-71 ASME PAPER 79-HA/SPC-10 ASME PAPER 79-WA/ENER-4 ASME PAPER 79-WA/ENER-5 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENIBE-6 ASME PAPER 79-WA/ENIBE-6 ASME PAPER 79-WA/ENIBE-3 ASME PAPER 79-WA/ET-31 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-2 ASME PAPER 79-WA/SOL-3 ASME PAPER 79-WA/SOL-4 ASME PAPER 79-WA/SOL-4 ASME PAPER 79-WA/SOL-6 ASME PAPER 79-WA/SOL-1	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0071 P0071 P0071 P0071 P0070 P0071 P0070 P0068 P0077 P0066 P0067 P0069 P00669 P00669 P00668 P0068	N80-15594 #  N80-15594 #  A80-15616 #  A80-15705 #  A80-15705 #  A80-15267*#  A80-18643 #  A80-18646 #  A80-18646 #  A80-18643 #  A80-18637 #  A80-18637 #  A80-18593 #  A80-18592 #  A80-18597 #  A80-18557 #  A80-18555 #  A80-18555 #  A80-18555 #  A80-18555 #  A80-18555 #  A80-18553 #  A80-18553 #  A80-18586 #  A80-18586 #  A80-18586 #  A80-18588 #  A80-18588 #  A80-18588 #
ABA-78-06  ASME PAPER 79-DET-9 ASME PAPER 79-DET-71 ASME PAPER 79-DET-71 ASME PAPER 79-DET-71 ASME PAPER 79-WA/SDC-10 ASME PAPER 79-WA/ENER-5 ASME PAPER 79-WA/ENER-5 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-3 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-33 ASME PAPER 79-WA/HT-36 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/HT-38 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-2 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-2 ASME PAPER 79-WA/SOL-1	2 5 25 25 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	P0174 P0097 P0041 P0041 P0071 P0071 P0071 P0071 P0071 P0070 P0071 P0070 P0071 P0070 P0066 P0066 P0067 P0069 P0067 P0069 P0067 P0066 P0066 P0066 P0066 P0066 P0066 P0066 P0066 P0066	N80-15594 #  N80-15594 #  A80-15616 #  A80-15705 #  A80-15729 #  A80-15267 #  A80-18623 #  A80-18644 #  A80-18646 #  A80-18637 #  A80-18637 #  A80-18637 #  A80-18593 #  A80-18593 #  A80-18595 #  A80-18565 #  A80-18582 #  A80-18583 #  A80-18584 #  A80-18588 #  A80-18588 #  A80-18588 #  A80-18588 #  A80-18580 #
ABAIA/79-27  ASA-78-06  ASME PAPER 79-DET-9 ASME PAPER 79-DET-71 ASME PAPER 79-DET-71 ASME PAPER 79-HA/SPC-10 ASME PAPER 79-WA/ENER-4 ASME PAPER 79-WA/ENER-5 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENER-6 ASME PAPER 79-WA/ENIBE-6 ASME PAPER 79-WA/ENIBE-6 ASME PAPER 79-WA/ENIBE-3 ASME PAPER 79-WA/ET-31 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-31 ASME PAPER 79-WA/HT-37 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-1 ASME PAPER 79-WA/SOL-2 ASME PAPER 79-WA/SOL-3 ASME PAPER 79-WA/SOL-4 ASME PAPER 79-WA/SOL-4 ASME PAPER 79-WA/SOL-6 ASME PAPER 79-WA/SOL-1	25 25 25 25 25 25 25 25 25 25 25 25 25 2	P0174 P0097 P0041 P0041 P0071 P0071 P0071 P0071 P0070 P0071 P0070 P0068 P0077 P0066 P0067 P0069 P00669 P00669 P00668 P0068	N80-15594 #  N80-15594 #  A80-15616 #  A80-15705 #  A80-15705 #  A80-15267*#  A80-18643 #  A80-18646 #  A80-18646 #  A80-18643 #  A80-18637 #  A80-18637 #  A80-18593 #  A80-18592 #  A80-18597 #  A80-18557 #  A80-18555 #  A80-18555 #  A80-18555 #  A80-18555 #  A80-18555 #  A80-18553 #  A80-18553 #  A80-18586 #  A80-18586 #  A80-18586 #  A80-18588 #  A80-18588 #  A80-18588 #

```
CONF-780750-10 25 p0129 N80-12611 $\frac{1}{2}$ CONF-780714-2 25 p0176 N80-15618 $\frac{1}{2}$ CONF-780792 25 p0176 N80-14548 $\frac{1}{2}$ CONF-780808-23 25 p0163 N80-14265 $\frac{1}{2}$ CONF-780808-24 25 p0163 N80-14569 $\frac{1}{2}$ CONF-780808-24 25 p0163 N80-14569 $\frac{1}{2}$ CONF-780843-5 25 p0164 N80-14568 $\frac{1}{2}$ CONF-780867-1 25 p0164 N80-14573 $\frac{1}{2}$ CONF-780885-1 25 p0164 N80-14573 $\frac{1}{2}$ CONF-780885-1 25 p0164 N80-14573 $\frac{1}{2}$ CONF-780952-39 25 p0181 N80-15600 $\frac{1}{2}$ CONF-780983-2 25 p0174 N80-15933 $\frac{1}{2}$ CONF-780983-2 25 p0180 N80-12579 $\frac{1}{2}$ CONF-780983-7 25 p0126 N80-12579 $\frac{1}{2}$ CONF-780983-7 25 p0126 N80-12579 $\frac{1}{2}$ CONF-781006-2 25 p0170 N80-15346 $\frac{1}{2}$ CONF-781045-3 25 p0120 N80-12919 $\frac{1}{2}$ CONF-781045-4 25 p0120 N80-12199 $\frac{1}{2}$ CONF-781046-1 25 p0116 N80-11624 $\frac{1}{2}$ CONF-781046-1 25 p0110 N80-1200 $\frac{1}{2}$ 
ASHE PAPER 79-WA/SOL-19 ...... 25 p0069 A80-18587 #
ASHE PAPER 79-WA/SOL-20 ..... 25 p0065 A80-18558 #
                                                                                                               CONF-780550-10 ...... 25 p0129 N80-12611 #
ASME PAPER 79-WA/SOL-20
ASME PAPER 79-WA/SOL-21
                                              ..... 25 p0067 A80-18567 #
ASME PAPER 79-WA/SOL-22
                                                               25 p0065 A80-18554 #
ASME PAPER 79-WA/SOL-23 ..... 25 p0065 A80-18555 # ASME PAPER 79-WA/SOL-24 ..... 25 p0068 A80-18577 #
ASME PAPER 79-WA/SOL-25
                                              ..... 25 p0070 A80-18591 #
ASME PAPER 79-WA/SOL-39 ..... 25 p0069 A80-18589 #
                                                                                                               CONF-781045-4 25 p0120 800-12200 $
CONF-781046-1 25 p0177 N80-15624 $
CONF-781046-3 25 p0177 N80-15624 $
CONF-781046-5 25 p0177 N80-15624 $
CONF-781046-5 25 p0176 N80-15623 $
CONF-781046-6 25 p0176 N80-15623 $
CONF-781046-9 25 p0176 N80-15623 $
CONF-781046-10 25 p0127 N80-12590 $
CONF-781046-11 25 p0127 N80-12590 $
CONF-781063-1 25 p0175 N80-15613 $
CONF-781063-2 25 p0175 N80-15613 $
CONF-781063-2 25 p0175 N80-12577 $
CONF-78102-1 25 p0127 N80-12577 $
CONF-78102-1 25 p0126 N80-12577 $
CONF-781102-1 25 p0126 N80-12577 $
CONF-781109-8 25 p0127 N80-1260 $
CONF-781109-8 25 p0127 N80-1261 $
CONF-781109-8 25 p0171 N80-16619 $
CONF-781112-8 25 p0117 N80-11619 $
CONF-781133 25 p0100 N80-10645 $
ASME PAPER 79-WA/SOL-40 ..... 25 p0069 A80-18583 #
ASSA-10/1978 ...... 25 p0116 N80-11632 #
BCL-OA-TFR-79-4
                               25 p0118 N80-11747*#
BCL-OA-TFR-79-6 ...... 25 p0108 N80-11532*#
BDM/W-79-548-TR ..... 25 p0092 N80-10379*#
BDX-613-2039-REV ..... 25 p0108 N80-11384 #

        CONF-781112-8
        25 p0115 N80-11619

        CONF-781133
        25 p0100 N80-10645

        CONF-781133-3
        25 p0096 N80-10608

        CONF-781140-4
        25 p0120 N80-12197

        CONF-781208
        25 p0100 N80-10646

        CONF-781214-2
        25 p0113 N80-11604

        CONF-790105-1
        25 p0113 N80-11616

        CONF-790107-10
        25 p0171 N80-15568

        CONF-790127-3
        25 p0178 N80-15568

        CONF-790213-4
        25 p0178 N80-15220

        CONF-790305-6
        25 p0103 N80-12257

        CONF-790305-6
        25 p0100 N80-10639

BM-IC-8792 ..... 25 p0170 N80-15544 #
RNI-NEREG-25635 25 p0104 N80-10922 #
 ..... 25 p0117 N80-11639 #
 BNL-24999
 BNL-50924
                                                                                                                 25 p0134 N80-13277 #
 BNL-50944
 BNL-50959
                     25 p0157 N80-14512 #
 CONF-790444-3 ..... 25 p0172 N80-15571 #
                                                                                                                 CONF-790446-3
                                                                                                                                           25 p0142 N80-13654 #
 CAES-11 ..... 25 p0145 N80-13687 #
                                                                                                                 CONF-790457-2 25 p0172 880-155/6

CONF-790457-3 25 p0171 880-155/66

CONF-790459-22 25 p0157 880-14511

CONF-790461-2 25 p0112 880-11587

CONF-790460-1 25 p0167 880-155/6
 CERL-TR-E-154 ..... 25 p0107 N80-11259 #
 CGR/DC-12/79 ..... 25 p0149 N80-13754 '#
                                                                                                                 CONF-790481-1
                                                                                                                                                                                25 p0166 N80-14954 #
                                                                                                                 CONF-790484-1
                                                                                                                                            25 p0 159 N80-14531
25 p0 160 N80-14538
 CN-ISSN-0082-5255 ...... 25 p0119 N80-12189 #
                                                                                                                 CONF-790501-2
                                                                                                                 CONF-790515-3
                                                                                                                                            CONF-751270-SUMM ..... 25 p0176 N80-15615 #
 CONF-761168-SUMB 25 p0147 N80-13705 # CONF-771131 25 p0164 N80-14572 #
                                                                                                                                             25 p0178 N80-15635
                                                                                                                 CONF-790515-4
                                                                                                                 CONF-790520-2
CONF-790520-4
                                                                                                                                                                                25 p0168 N80-15281 #
                                                                                                                                             .....
                                                                                                                                            25 p0134 N80-13273
25 p0168 N80-13273
 CONF-790520-5
                                                                                                                                                                               25 p0134 N80-13275 #
                                                                                                                  CONF-790520-6

      CONF-780380
      25 p0097 N80-10613 #

      CONF-780383
      25 p0162 N80-14558 #

      CONF-780387-1
      25 p0130 N80-12625 #

      CONF-780425-7
      25 p0115 N80-11620 #

      CONF-780432
      25 p0174 N80-15599 #

      CONF-780447-1
      25 p0113 N80-11596 #

      CONF-780550-9
      25 p0163 N80-14563 #

                                                                                                                                            25 p0134 N80-13274
25 p0107 N80-13274
                                                                                                                  CONF-790520-7
                                                                                                                  CONF-790527-1
                                                                                                                  CONF-790530-1
                                                                                                                                             25 p0102 N80-10661
                                                                                                                  CONF-790538-10 ...... 25 p0159 N80-14530
```

CONF-790541-2 25 p0099 N80-10638 #	C00-4094-44 25 p0175 N80-15609 #
CONF-790541-3 25 p0144 N80-13671 #	C00-4094-48
COMP - 79034 1-12 25 .p0159 N80-14528 #	C00-4094-53 25 p0146 N80-13692 #
CONF-790541-16 25 p0161 N80-14541 #	C00-4272-3 25 p0165 N80-14587 #
CONF-790541-17 25 p0160 N80-14540 #	C00-4297-1 25 p0103 800-14387 #
CONF-790541-20 25 p0124 N80-12566 #	C00-4479-2
CONF-790541-21 25 p0162 N80-14552 #	C00-4546-1
CONF-790541-24 25 p0142 N80-13653 #	C00-4546-3
CONF-790541-32 25 p0159 N80-14527 #	
CONF-790541-37 25 p0161 N80-14549 #	
CONF-790541-39	
CONF-790541-54 25 p0143 N80-13665 #	
CONF-790550-1 25 p0165 N80-14584 #	
CONF-790550-3	C00-4577-8
CONF-790602-14	C00-4628-4-PT-1
CONF-790602-50	C00-4649-4 25 p0147 N80-13707 #
CONF-790602-54	C00-4878-3 25 p0 146 N80-13694 #
CONF-790602-69	C00-5022-5 25 p0 172 N80-15576 #
CONF-790605-1	DW 26
	DM-26 25 p0116 N80-11631 #
	DME/NAE-1979-2 25 p0182 N80-16022 #
	DOE-TR-159 25 p0130 N80-12612 #
	DOE/CS-0056
CONF-790631-1 25 p0143 N80-13666 #	
CONF-790631-3	DCE/CS-0093
CONF-790631-6 25 p0124 N80-12564 #	1 DUD/US-1830-T3 ******* 25 DUNGG NRO-10635 #
CONF-790636-1 25 p0099 N80-10633 #	DOE/CS-34267/1 · 25 p0 145 N80-13688 #
CONF-790685-1 25 p0140 N80-13635 #	1 DUE/CS/3912-T1
CONF-790713-1 25 p0151 N80-14346 #	1 DUE/EDP-0030
CONF-790803-3 25 p0102 N80-10663 #	1 DUE/EDP-0034 ************* 25 p0176 N80-15621 #
CONF-790803-9 25 p0136 N80-13296 #	1 DUE/EUP=0038 ************ 75 m0170 N90-16440 4
CONF-790903-07 25 p0160 N80-14535 #	DOE/EIA-0102/50 25 p0113 N80-11601 #
CONF-790803-08 25 p0122 N80-12543 #	
CONF-790803-16	DOE/EIA-0103/8
CONF-790803-17 25 p0102 N80-10664 #	
CONF-790803-21 25 p0149 N80-13906 #	DOE/EIA-0182/2
CONF-790803-23 25 p0146 N80-13693 #	DOE/EIA-0183/10
CONF-790803-25 25 p0129 N80-12605 #	DOE/FIA-0184/1 25 p0174 N80-15594 #
CONF-790803-27 25 p0147 N80-13710 #	DOE/EIA-0184/4
CONF-790803-29 25 p0158 N80-14522 #	1 DOE/EIA-0184/5 25 n0139 N90-12607 4
CONF-790803-42	DOE/EIA-0192
CONF-790803-50 25 p0177 N80-15629 #	1 DUE/EXTUUZO/U
CONF-790805-3 25 p0137 N80-13431 #	DOE/ER-0026
CONF-790815-2 25 p0136 N80-13297 #	1 DUE/EK+0030
CONF-790822-5 25 p0136 N80-13294 #	DOE/ERA-0047
CONF-790854-1 25 p0178 N80-15637 #	DOF/ERA-0048 25 p0126 N80-12582 \$
CONF-790906-10	EOE/ERD-0004
CONF-790906-15 25 p0124 N80-12561 #	DCE/ERD-0022
CONP-790915-1	DOE/ET-0012/2-REV
CONP-790917-7 25 p0169 N80-15288 #	DOE/ET-0019/2
CONF-791007-3 25 p0178 N80-15634 #	DCE/ET-0072
CONF-/91009-3	DOE/ET-0078/T1 25 p0143 N80-13662 #
CONF-791103-16 25 p0167 N80-15227 #	DOE/ET-0089
CONF-7804101-1 25 p0176 N80-15616 #	DOE/ET-0093
CONF-7804102-6 25 p0121 N80-12291 #	DOE/ET-0100
CONF-7804108-3	DOE/FT-0101
CONF-7805126-5 25 p0126 N80-12586 #	DOE/ET-0101 25 p0161 N80-14542 #
CONF-7805140 25 p0160 N80-14533 #	DOE/ET-0109
CONF-7806118 25 p0145 N80-13681 #	DOE/ET-4064-1
CONF-7806153-1 25 p0140 N80-13642 #	
CONF-7808102 25 p0102 N80-10665 #	DOL/E1-4003/1-40L-2-APP 25 p014/ N80-13713 #
CONF-7808104-1	DOE/ET-4065/1-VOL-3
CONF-7809137-1 25 p0158 N80-14523 #	DOE/ET-248447/1
CONF-7809141-1	DOE/FT-248447/1 25 p0142 N80-13660 #
CONF-7810132 25 p0112 N80-11589 #	DOE/EV-0028
CONF-7810135-2 25 p0176 N80-15614 #	DOE/EV-0035
CONF-7810154-1 25 p0115 N80-11622 #	DOE/EV-0036
CONF-7810167-1 25 p0098 N80-10621 #	DOE/EV-0044
CONF-7811112-2 25 p0168 N80-15278 #	DOE/EV-70031/4-PT-A/B 25 p0148 N80-13723 #
CONF-7811112-2	DOE/FERC-0010 25 p0107 N80-11251 #
# 60.011_00# \Cloh Ca ===================================	DOE/HEW/FPA-03
CONS/5058-T1 25 p0173 N80-15591 #	DOE/JPL-1012-22-REV-A 25 p0110 N80-11570*#
,	DOE/JPL-1012-33 25 p0155 N80-14492*#
COO-2577-16 25 p0163 N80-14568 #	DUE/JPL-1060-20
C00-2577-17	1 DUEZAPL-1060-25 25 p.0155 ngo_1000+4
	DOE/JPL-1060-25 25 p0155 N80-14488*#
COO-2858-14	1 DCE/JPL-1060-28
C00-2858-14	DCE/JPL-1060-28
C00-2858-14	DCE/JPL-1060-28
COO-2858-14	DCE/JPL-7060-28 25 p0154 N80-14484*# DCE/JPL-954328-79/13 25 p0154 N80-14483*# DOE/JPL-954830-78/2 25 p0151 N80-14273*# DOE/JPL-954847-78/4 25 p0109 N80-11562*#
COO-2858-14	DCE/JPL-1060-28
COO-2858-14       25       p0163       N80-14569       #         COO-2858-23       25       p0143       N80-13668       #         COO-2893-9       25       p0174       N80-15595       #         COO-2893-10       25       p0159       N80-14524       #         COO-2934-7       25       p0129       N80-12609       #	DCE/JPL-1060-28
COO-2858-14     25 p0163 N80-14569 #       COO-2858-23     25 p0174 N80-13668 #       COO-2893-9     25 p0174 N80-15595 #       COO-2893-10     25 p0159 N80-14524 #       COO-2934-7     25 p0169 N80-12609 #       COO-2982-38     25 p0169 N80-15291 #	DCE/JPL-1060-28
COO-2858-14       25       p0163       N80-14569       #         COO-2858-23       25       p019143       N80-13668       #         COO-2893-9       25       p0174       N80-15595       #         COO-2893-10       25       p0159       N80-14524       #         COO-2934-7       25       p0129       N80-12609       #         COO-2982-38       25       p0169       N80-15291       #         COO-2993-1       25       p0173       N80-15584       #	DCE/JPL-954328-79/13
COO-2858-14       25       p0163       N80-14569       #         COO-2858-23       25       p0143       N80-13668       #         COO-2893-9       25       p0174       N80-15595       #         COO-2893-10       25       p0159       N80-14524       #         COO-2934-7       25       p0129       N80-12609       #         COO-2982-38       25       p0169       N80-15291       #         COO-2993-1       25       p0173       N80-15584       #         COO-4094-10       25       p0127       N80-12592       #	DCE/JPL-1060-28
COO-2858-14       25       p0163       N80-14569       #         COO-2858-23       25       p0143       N80-13668       #         COO-2893-9       25       p0174       N80-15595       #         COO-2893-10       25       p0159       N80-14524       #         COO-2934-7       25       p0129       N80-12609       #         COO-2932-38       25       p0169       N80-15291       #         COO-2993-1       25       p0173       N80-15584       #         COO-4094-10       25       p0127       N80-12592       #         COO-4094-17       25       p0116       N80-11627       #	DCE/JPL-1060-28
COO-2858-14       25       p0163       N80-14569       #         COO-2858-23       25       p0143       N80-13668       #         COO-2893-9       25       p0174       N80-13668       #         COO-2893-10       25       p0159       N80-14524       #         COO-2934-7       25       p0129       N80-12609       #         COO-2982-38       25       p0169       N80-15291       #         COO-2993-1       25       p0173       N80-15584       #         COO-4094-10       25       p0127       N80-12592       #         COO-4094-17       25       p0116       N80-11627       #         COO-4094-25       25       p0137       N80-13377       #	DCE/JPL-1060-28
COO-2858-14       25       p0163       N80-14569       #         COO-2858-23       25       p0143       N80-13668       #         COO-2893-9       25       p0174       N80-15595       #         COO-2893-10       25       p0159       N80-14524       #         COO-2934-7       25       p0129       N80-12609       #         COO-2932-38       25       p0169       N80-15291       #         COO-2993-1       25       p0173       N80-15584       #         COO-4094-10       25       p0127       N80-12592       #         COO-4094-17       25       p0116       N80-11627       #	DCE/JPL-1060-28

DOE/NASA/0058-79/3 25 p0109 N80-11558*#	·
DOE/NASA/0067-79-2 25 p0096 N80-10603*#	EPRI-EA-674 25 p0095 N80-10584 #
DOE/NASA/1034-79/6 25 p0171 N80-15560*#	EPRI-EA-894 25 p0175 N80-15604 #
DOE/NASA/1059-79/4 25 p0138 N80-13623*#	EPRI-EA-1018
DOE/NASA/1062-79/3 25 p0138 NEO-13624**	EPRI-EA-1079 25 p0157 N80-14514 #
DOE/NASA/2593-79/11 25 p0155 N80-14493*#	FPRI-EA-1115 25 p0175 N80-15606 #
DOE/NASA/2674-79/8 25 p0166 N80-14922*#	TREE DW 1005 25 n0098 N90-10629 #
DOE/NASA/5906-79/1 25 p0170 N80-15553*#	EPRI-EM-1005
DOE/NASA/20370-79/18 25 p0137 N80-13490*#	EART-RU-1124 52 hold 1 800-12040 4
DOE/NASA/20370-79/19 25 p0170 N80-15422*#	EPRI-ER-513 25 p0160 N80-14536 #
DOE/PE-0007	EPRI-ER-746-SB
DOE/PE-0010 25 p0115 N80-11621 #	EPRI-ER-778-SR
DOE/PE-0012	EPRI-ER-845
DOE/RA-23-216.00.0-02 25 p0143 N80-13667 #	EPRI-ER-863 25 p0114 N80-11607 #
DOE/RA-0037	EPRI-ER-966-SR
DOE/RE-904/6-13	EPRI-ER-978-VOL-3 25 p0139 N80-13628 #
DOE/SF/10505-1	EPRI-ER-979 25 p0097 N80-10610 #
DOE/TIC-4585-R1-SUPPL-1 25 p0097 N80-10617 #	EPRI-ER-1004
DOE/TIC-10067 25 p0104 N80-10965 #	EPRI-ER-1034 25 p0118 N80-11935 #
DOE/TIC-10071 25 p0128 N80-12603 #	EPRI-ER-1095-SR 25 p0147 N80-13703 #
DOE/TIC-10103	
DOE/TIC-10109 25 p0097 N80-10618 #	EPRI-FP-1028 25 p0119 N80-12192 #
DOP/TTC-10118	•
DOE/TTC-10119	E80-10033 25 p0170 N80-15528*#
DOB/TIC-10127 25 p0157 N80-14515 #	
	FE-1207-62 25 p0135 N80-13288 #
DOT-HS-803-668 25 p0166 N80-14976 #	FE-1784-42 25 p0106 N80-11248 #
	FE-1800-30 25 p0135 N80-13291 #
DOT-ISC-NHTSA-79-43 25 p0166 N80-14976 #	FE-1800-33 25 p0135 N80-13287 #
i de la companya de	FE-2025-38
DP-MS-79-2 25 p0149 N80-13917 #	PE-2247-2 25 p0119 N80-12191 #
	FE-2247-22
DPM-RAB/SHS-78-1 25 p0108 N80-11551 #	PE-2286-32
05 0400 000 445(4+#	FE-2307-38 25 p0106 N80-11249 #
DRL-74/DRD-SE 25 p0109 N80-11561*#	FE-2307-46
05 0405 900 4412448	PE-2447-13
D180-25381-1 25 p0105 N80-11121*# D180-25402-1 25 p0105 N80-11122*#	FE-2489-33
D180-25402-1 25 p0103 N00-11122**	FE-2537-7 25 p0120 N80-12198 #
D180-25461-1 25 p0167 N80-15195*#	FE-2621-3
E-159	FE-11270-1 25 p0180 N80-15691 #
E-211	
E-235 25 p0170 N80-15422*#	FJSRL-TR-79-0006 25 p0123 N80-12553 #
E-251 25 p0166 N80-15133*#	•
E-257 25 p0166 N80-14922*#	F3737-QR-102 25 p0109 N80-11560*#
E-263 25 p0155 N80-14493*#	
E-264 25 p0132 N80-12881*#	GEAEP-54 25 p0154 N80-14484*#
E-269 25 p0138 N80-13624*#	A440 W00 44045 W
E-274 25 p0123 N80-12552*#	GIT-B-519-F
E-285 25 p0171 N80-15560*#	ODO 25 120 25 n0101 N00_1500# #
E-291 25 p0167 N80-15204*#	GPO-35-120
E-297 25 p0170 N80-15554*#	GPO-41-481
PMD-78-68 25 p0103 N80-10679 #	GPO-42-797
EMD-79-19 25 p0164 N80-14575 #	GPO-43-586 25 p0109 N80-11556 #
END-79-27 25 p0181 N80-15946 #	GPO-51-336 25 p0104 N80-10964 #
FMD-79-68 25 D0103 N8C-10678 #	•
EMD-79-84 25 p0151 N80-14279 #	GURC-REPT-165
EPA-600/J-78-111 25 p0165 N80-14595 #	HCP/B8072-01 25 p0118 N80-11941 #
EPA-600/4-79-018 25 p0153 N80-14470 #	HCP/CS-0023
EPA-600/7-78-174 25 p0094 N80-10398 #	HCP/CS-2522
EPA-600/7-79-007 25 p0180 N80-15691 #	HCP/C4101
EPA-600/7-79-022C 25 p0179 N80-15682 #	HCP/ET/4000-78/1
EPA-600/7-79-029B 25 p0131 N80-12637 #	HCP/EV6119-1
EPA-600/7-79-060A-VOL-1 25 p0152 N80-14463 #	HCP/H6346-01/1-V01-1 25 p0139 N80-13633 # HCP/M1011-04 25 p0118 N80-11954*#
EPA-600//-/9-0608-VOL-2 25 p0/52 N80-14464 # 1	HCP/M2098-03
EPA-600/7-79-060B-VOL-2 25 p0152 N80-14464 # EPA-600/7-79-060C-VOL-3 25 p0152 N80-14465 # EPA-600/7-79-060D-VOL-4 25 p0152 N80-14466 # EPA-600/7-79-060E-VOL-5 25 p0152 N80-14467 #	HCP/M2165
PD 4 600 /7-70-060P-701-5 25 p0152 NCO-14400 #	HCP/M2752-01 25 p0092 N80-10383 #
EPA-600/7-79-060F-VOL-6 25 p0152 N80-14468 #	HCP/M5056-01
EPA-600/7-79-074 25 p0180 N80-15685 #	HCP/M8662-1 25 p0114 N80-11606 #
EPA-600/7-79-104A 25 p0165 N80-14590 #	HCP/P3885 25 p0115 N80-11621 #
RPA-600/7-79-104B	HCP/R4024-01/14 25 p0101 N80-10657 #
EPA-600/7-79-110-VOL-1 25 p0179 N80-15681 #	HCP/T2286-01
EPA-600/7-79-117 25 p0117 N80-11656 #	HCP/T2898
EPA-600/7-79-120	HCP/T2898-01/3
EPA-600/7-79-131 25 p0180 N80-15688 #	HCP/T4016-1
EPA-600/7-79-132 25 p0180 N80-1568/ #	HCP/14016-01/2
EPA-600/7-79-146	HCP/T4022-01
EPA-600/7-79-150	#CD/##101_03
EPA-600/8-79-023A	HCP/T4101-03
EPA-600/8-79-023A	HCP/U6354-01
Ern-000/0-/3-0230 ********** 23 pott/ 100*11034 4	202,02001 01 012002011111111111111111111
EPRI-AF-1002 25 p0096 N80-10605 #	HEDL-SA-1559 25 p0119 N80-12147 #
EPRI-AF-1084	•
	HONEYWELL-F3437-QR-101 25 p0096 N80-10602*#

IAF PAPER 79-IISL-03	25 p0047	A80-17064 #	MDC-G7399-VCL-1	25 p0146	N80-13700 #
ICTIS/TR-02	25 p0106	NRO-11179 #	METC-8089-T4	25 20125	NOO-12200 A
ICTIS/TR-03			HEIC-5009-14	25 PU 135	880-13290 ¥
ICTIS/TR-05	25 p0106	N80-11180 #	METC/CR-79/22	·25 p0149	N80-13735 #
•	_		METC/RI-79/4	25 p0093	N80-10386 #
ID-12027-1	25 p0173	N80-15591 #			
IIASA-RR-78-17	25 50100	200_1155#	MITSG-79/16	25 p0164	N80-14576 #
11n3n Mt /0-1/	23 po 103	R00-11334	MLH-2419	25 n016#	N80-14570 #
IMS-001/FE/1	25 p0170	N80-15420 #	MLM-2598 (CP)	25 p0113	N80-11603 #
			MLH-2598 (CP) MLH-2625-OP MLH-2626-OP	25 p0160	N80-14540 #
IR-1	25 p0114	N80-11607 #	HLM-2626-OP	25 p0161	N80-14541 #
IS-M-166	25 p0125	N80-12576 #	MPR-92	25 p0135	N80-13288 #
IS-M-202	25 p0129	N80-12611 #			
		1	MTI-79ASE77RE2	25 p0150	N80-13989*#
IS-4655	25 p0145	N8C-13679 #			
IS-4703	25 pu 14/	180-13/02 #	MTR-79W0022	25 pul33	N80-12962 #
ISBN-0-309-02874-4	25 p0102	N80-10677 #	MTR-79W00160	25 p0104	N80-11255 #
ISBN-0-930978-04-8	25 p0164	N80-14574 #		•	
ISBN-92-835-1326-6			NASA-CASE-LEW-12586-1	25 p0153	N80-14472*
ISBN-92-9029-016-1			NACA_CACB_MBC_23730_2	25 -0152	NOO 100224
ISBN-92-9029-017-X			NASA-CASE-MFS-23720-2 NASA-CASE-MFS-23727-1	25 p0152	NSO-14423+
ISBN-951-38-0704-5				25 point	
			NASA-CASE-NPO-13652-3		
JPL-PUB-79-83	25 p0155	N8U-14488*#			N80-10377*#
JPL-FUB-79-107 JPL-FUB-79-110	25 p0155	NEO-14491+#	NASA-CASE-NPO-13849-1 NASA-CASE-NFO-13907-1	25 p0092	N80-10374* N80-10374*
	_	1			N80-10709*
L-13440'	25 p0109	N80-11559*#			N80-10361*#
LA-UR-78-1149	25 50112	N80-11506 #	NASA_CD_150610	25 -0001	NOO_ 10600+#
LA-UR-78-2556			NASA-CR-150618		
LA-UR-78-2587	25 p0126	N80-12577 #	NASA-CR-150696		
LA-UR-78-2861	25 p0100	N80-10645 #	NASA-CR-150706	25 p0096	N80-10601##
LA-UR-78-2895 LA-UR-78-2986			NASA-CR-150873		
LA-UR-79-226	25 p0151	N80-14346 #	NASA-CR-159163 NASA-CR-159497		
LA-UR-79-621			NASA-CR-159599	25 p0122	N80-12551*#
LA-UR-79-628			NASA-CR-159631	25 p0150	N80-13989*#
LA-UR-79-665 LA-UR-79-723	25 p0108	N80-11543 # N80-11592 #	NASA-CR-159659 NASA-CR-159660	25 p0136	N80-13362*#
LA-UR-79-950			NASA-CR-159660 NASA-CR-159705		
LA-UR-79-1057	25 p0107	N80-11348 #	NASA-CR-159706		
LA-UR-79-1115			NASA-CR-159725		
LA-UR-79-1220			NASA-CR-159729 NASA-CR-160320		
LA-UR-79-1242	25 p0149	N80-13906 #	NASA-CR-160377		
LA-UR-79-1256	25 p0129	N80-12605 #	NASA-CR-160378	25 p0105	N80-11122*#
LA-UR-79-1393			NASA-CR-160398		
LA-UE-79-1598			NASA-CR-160442 NASA-CR-161189		
20 02 17 1077 11111111111111111111111111			NASA-CR-161253		
LA-6953-MS			NASA-CR-161322	25 p0092	N80-10379*#
LA-7385-SR LA-7497-MS	25 p0114	N80-11608 #	NASA-CR-161323		
LA-7497-MS	25 p0117	N80-11889 #	NASA-CR-161329 NASA-CR-161330		
LA-7807-HDR			NASA-CR-161331		
LA-7820-PR	25 p0145	N80-13690 #	NASA-CR-162417	25 p0095	N80-10596 #
LA-7821-MS	. 25 p0144	N80-15299 #	NASA-CR-162421		
LA-7866-TASE	25 p0171	N80-15565 #	NASA-CR-162423 NASA-CR-162425	25 p0100	N80-11564+#
LA-7909-MS	25 p0140	N80-13634 #	NASA-CR-162426	25 p0110	N80-11565*#
			NASA-CR-162427	25 p0109	N80-11561*#
LBL-4432-REV-1			NASA-CR-162429 NASA-CR-162435		
LBL-7860-VOL-2			NASA-CR-162444		
LBL-7882	25 p0098	N80-10621 #	NASA-CR-162457	25 p0118	N80-11954*#
LBL-7883	25 p0141	N80-13648 #	NASA-CR-162528		
LBL-7893	25 p0097	N80-10611 #	NASA-CR-162529 NASA-CR-162534	25 p0154	N80-14481*#
LBL-8298			NASA-CE-162535		
LBL-8308	25 p0126	N80-12586 #	NASA-CR-162536	25 p0155	N80-14488*#
LBL-8371			NASA-CR-162541	25 p0155	N80-14492*#
LBL-8391 LBL-8431	25 p0133	N80-14533 #	NASA-CR-162544	25 p0154	NSO-14484*# NSO-14491**
LBL-8703	25 p0171	N80-15568 #	MEN CH 102770 *************	22 PO 100	BUU- 1447 17#
LBL-8857	25 p0161	N80-14549 #	NASA-TM-78226		
LBL-8919	25 p0111	N80-11579 #	NASA-TM-78243		
LBL-8925	25 po 145	BUV-1308U ₩	NASA-TM-78244 NASA-TM-78245	25 p0155 25 n0156	N80-14495**
LC-78-62956	25 p0164	N80-14574 #	NASA-TM-78246	25 p0156	N80-14496*#
LC-78-606163 LC-79-600126	25 p0093	N80-10392 #	NASA-TM-78251	25 p0156	N80-14501*#
LC-79-600126	25 p0167	N80-15275 #	NASA-TM-78253		
•		'	NASA-TM-79249	25 bnn32	#*CVCUI -UOD

NASA-TM-79275	25 p0138	N80-13623*# !	ORNL/PPA-79/2 25 p0138 N80-13605 f	£
NASA-TM-79284			ORNL/SUB-7321-1 25 p0130 N80-12613 4	
NASA-TM-79291				
			ORNL/TH-63-2 25 p0177 N80-15625	
			ORNL/TH-5758 25 p0098 N80-10627 #	
NASA-TH-79305			ORNL/TM-6533 25 p0125 N80-12575	#
NASA-TM-79307			ORNL/TM-6605 25 p0125 N80-12568 #	#
NASA-TE-79308	25 p0132	N80-12881*#	OBNL/TM-6622 25 p0176 N80-15620 4	
NASA-TM-79313	25 p0138	N80-13624*#	ORNL/TH-6668 25 p0128 N80-12599	
NASA-TM-79318	25 p0123	N80-12552*#	CRNL/TH-6934 25 p0139 N80-13631	•
NASA-TM-80177				•
NASA-TM-80194			ORO-5301-34	
				¥
NASA-TM-80577			ORO-5523-T1 25 p0173 N80-15590 i	#
NASA-TM-81380			· · · · · · · · · · · · · · · · · · ·	
NASA-TM-81383			OSU-SEL-5-510X	<b>#</b> .
NASA-TM-81387	25 p0170	N80-15554*#	•	
			OU-AMNE-78-5 25 p0115 N80-11622 #	#
NASA-TP-1564	25 p0109	N80-11559*#	OU-AMNE-78-6 25 p0116 N80-11623 #	ŧ
	•	1		-
NBS-SP-556	25 n0167	N80~15275 #	PAPER-77-26.6-REV 25 p0165 N80-14595 #	
	25 po 10.	100 13273 1	THIRM 77 20:0-HET 23 PO 103 HOO- 14393 4	
NDC/DTM_63/6	25 50105	NO.0-10075 #	EB-206#7040	
NBS/DIM-63/6	23 PO 103	109/3 #	PB-296479/9 25 p0130 N80-12615 t	
20 4254			PB-296523/4 25 p0094 N80-10398 4	#
NBSIR-79-1756			PB-296532/5 25 p0117 N80-11633 #	
NBSIR-79-1792	25 p0181	N80-16004 #	PB-296547/3	#
		1	PB-296622/4	
NEL-662	25 p0136	N80-13318 #	PB-296623/2 25 p0102 N80-10677	
	_		PB-296624/0	
NMEI-10-1	25 p0172	N80-15582 #	PB-296628/2 25 p0103 N80-10679	#
NMEI-37			PB-296650/5	i
NMEI-38	25 pn153	N80-14471 #	PB-296969/9	ž
NMEI-42	25 n0170	N80-15645 #		
	20 PO113	200, 13043 #		
NORREGIE ADDITION OF	25 -0400	NOU 15350 #	PB-297274/3	
NOAA-TM-IRL-APCL-22	25 <b>pula</b> u	Man-12/28 #	PB-297583/7 25 p0170 N80-15420 #	
7000000			PB-297587/8	
NOAA-79080910	25 p0164	N80-14576 #	PB-297618/1 25 p0104 N80-10701 #	
NOAA-79081403	25 p0180	N80-15758 #	PB-297756/9	
			FB-297836/9	#
NRL-MR-4060	25 p0150	N80-14259 #	PB-297853/4 25 p0107 N80-11255 #	
	•		PB-297882/3 25 p0164 N80-14575 #	
NSF/RA-780511	25 p0118	N80-11711 #	PB-297947/4 25 p0117 N80-11656 4	i
NSF/RA-780608	25 n0130	N80-12615 #	PB-297980/5 25 p0133 N80-12962	
NSF/RA-780616	25 p0150	NOO-15207 #	PB-297984/7	
NCP/DA_700000	25 p0103	NGO-15257 #		
NSF/RA-790003 NSF/RA-790007	25 PO 100	NOO-14502 #	PB-298109/0 25 p0120 N80-12204 #	
MSF/RA-/9000/	22 boits	M80-11902 #	PB-298473/0 25 p0165 N80-14595 #	
200 0 4			PB-298494/6	
NSR-8-1	25 pu151	N8U-14386*#	PB-298535/6	
			PB-298541/4 25 p0164 N80-14577 #	•
NTIS/PS-76/0447			PB-298574/5	
NTIS/PS-76/0463	25 p0148	N80-13719 #	PB-298580/2 25 p0117 N80-11670 #	#
NTIS/PS-76/0465	25 p0148	N80-13720 #	PB-298587/7 25 p0117 N80-11634 #	4
NTIS/PS-76/0550	25 p0103	N80-10681 #	PB-298785/7 25 p0165 N80-14578 #	£
NTIS/PS-77/0515	25 p0102	N80-10674 #	PB-298796/4 25 p0118 N80-11965 #	
NTIS/PS-77/0561			PB-298847/5 25 p0166 N80-14976	
NTIS/PS-77/0562			PB-298986/1 25 p0166 N80-14962	i
NTIS/PS-77/0563			PE-299077/8	
NTIS/PS-77/0565			PB-299100/8	
NTIS/PS-77/0634				
			PB-299177/6	•
NTIS/PS-78/0572			PB-299178/4 25 p0152 N80-14464 1	ŧ
NTIS/PS-78/0664			PB-299179/2 25 p0152 N80-14465 #	ř
NTIS/PS-78/0665			PB-299180/0	ř
NTIS/PS-78/0666			PB-299181/8	ŧ
NTIS/PS-78/0667			PB-299182/6	•
NTIS/PS-78/0690	25 p0103	N80-10681 #	PB-299183/4 25 p0180 N80-15688 #	ŧ
NTIS/PS-79/0632/4	25 p0102	N80-10674 #	PB-299191/7 25 p0165 N80-14590 #	ŧ
NTIS/PS-79/0764/5			PB-299192/5	
NTIS/PS-79/0765/2			PB-299238/6 25 p0180 N80-15685 #	
NTIS/PS-79/0771/0			PB-299271/7 25 p0179 N80-15645 #	
NTIS/PS-79/0772/8			PB-299325/1 25 p0180 N80-15687 #	
NTIS/PS-79/0773/6			PB-299399/6 25 p0179 N80-15682	
NTIS/PS-79/0782/7			PB-299448/2 25 p0179 N80-15304 #	
NTIS/PS-79/0814/8				
NTIS/PS-79/0815/5				,
			PB-299568/6 25 p0170 N80-15544 #	
		N20-13717 #		
	25 p0148	N80-13717 #	PB-299575/1 25 p0169 N80-15294 #	•
NTIS/PS-79/0817/1	25 p0148 25 p0148	N80-13719 #	PB-299575/1	#
NTIS/PS-79/0817/1	25 p0148 25 p0148 25 p0148	N80-13719 # N80-13718 #	PB-299575/1	# #
NTIS/PS-79/0817/1	25 p0148 25 p0148 25 p0148	N80-13719 # N80-13718 #	PB-299575/1	‡ ‡
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0819/7	25 p0148 25 p0148 25 p0148 25 p0148 25 p0148	N80-13719 # N80-13718 # N80-13720 #	PB-299575/1	
NTIS/PS-79/0817/1	25 p0148 25 p0148 25 p0148 25 p0148 25 p0148	N80-13719 # N80-13718 # N80-13720 #	PB-299575/1	
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0819/7 NYSERDA-78/18	25 p0148 25 p0148 25 p0148 25 p0148 25 p0107	N80-13719 # N80-13718 # N80-13720 # N80-11254 #	PB-299575/1	
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0819/7	25 p0148 25 p0148 25 p0148 25 p0148 25 p0107	N80-13719 # N80-13718 # N80-13720 # N80-11254 #	PB-299575/1	
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0819/7 NYSERDA-78/18	25 p0148 25 p0148 25 p0148 25 p0148 25 p0107	N80-13719 # N80-13718 # N80-13720 # N80-11254 #	PB-299575/1	
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0819/7 NYSERDA-78/18 OPPORTUNITY-BRIEF-15	25 p0148 25 p0148 25 p0148 25 p0148 25 p0148 25 p0107 25 p0164	N80-13719 # N80-13718 # N80-13720 # N80-11254 # N80-14576 #	PB-299575/1 25 p0169 N80-15294 # PB-299733/6 25 p0181 N80-15294 # PB-299733/6 25 p0181 N80-15992 # PB-299851/6 25 p0180 N80-14576 # PB-299928/2 25 p0180 N80-15699 # PB-300375/3 25 p0167 N80-15275 # PB-300375/3 25 p0179 N80-15676 # PB-300383/7 25 p0179 N80-15676 # PB-300491/8 25 p0181 N80-16004 # PB-300692/1 25 p0181 N80-15946 #	
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0819/7 NYSERDA-78/18	25 p0148 25 p0148 25 p0148 25 p0148 25 p0148 25 p0107 25 p0164	N80-13719 # N80-13718 # N80-13720 # N80-11254 # N80-14576 #	PB-299575/1	
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0819/7 NYSERDA-78/18 OPPORTUNITY-BRIEF-15 ORAU-158	25 p0148 25 p0148 25 p0148 25 p0148 25 p0107 25 p0164 25 p0179	N80-13719 # N80-13718 # N80-13720 # N80-11254 # N80-14576 #	PB-299575/1 25 p0169 N80-15294 # PB-299733/6 25 p0181 N80-15294 # PB-299733/6 25 p0181 N80-15992 # PB-299851/6 25 p0164 N80-15992 # PB-299928/2 25 p0180 N80-15699 # PB-299951/4 25 p0167 N80-15275 # PB-300375/3 25 p0179 N80-15681 # PB-300383/7 25 p0179 N80-15681 # PB-300491/8 25 p0181 N80-16004 # PB-300692/1 25 p0181 N80-15946 # PB-300720/0 25 p0180 N80-15758 # PB-301104/6	*****
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0819/7 NYSERDA-78/18 OPPORTUNITY-BRIEF-15 ORAU-158 ORAU/IEA-78-17(M)	25 p0148 25 p0148 25 p0148 25 p0148 25 p0107 25 p0164 25 p0179 25 p0127	N80-13719 # N80-13718 # N80-13720 # N80-11254 # N80-14576 # N80-15670 # N80-12594 #	PB-299575/1	
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0819/7 NYSERDA-78/18 OPPORTUNITY-BRIEF-15 ORAU-158 ORAU/IEA-78-17(M) ORAU/IEA-78-20(M)	25 p0148 25 p0148 25 p0148 25 p0148 25 p0107 25 p0164 25 p0179 25 p0127 25 p0127	N80-13719 # N80-13718 # N80-13720 # N80-11254 # N80-14576 # N80-12594 # N80-12595 #	PB-299575/1	
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0819/7 NYSERDA-78/18 OPPORTUNITY-BRIEF-15 ORAU-158 ORAU/IEA-78-17(M)	25 p0148 25 p0148 25 p0148 25 p0148 25 p0107 25 p0164 25 p0179 25 p0127 25 p0127	N80-13719 # N80-13718 # N80-13720 # N80-11254 # N80-14576 # N80-12594 # N80-12595 #	PB-299575/1	
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0818/7 NYSERDA-78/18  OPPORTUNITY-ERIEF-15  ORAU-158  ORAU/IEA-78-17(M) ORAU/IEA-78-20(M) ORAU/IEA-79-8(R)	25 p0148 25 p0148 25 p0148 25 p0148 25 p0107 25 p0107 25 p0164 25 p0179 25 p0127 25 p0127 25 p0122	N80-13719 # N80-13710 # N80-13720 # N80-11254 # N80-14576 # N80-15670 # N80-12594 # N80-12595 # N80-12594 # N80-12595 # N80-12544 #	PB-299575/1	
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0818/7 NYSERDA-78/18 OPPORTUNITY-BRIEF-15 ORAU-158 ORAU/IEA-78-17(M) ORAU/IEA-78-20(M) ORAU/IEA-79-8(R) ORNL/CON-23	25 p0148 25 p0148 25 p0148 25 p0107 25 p0107 25 p0164 25 p0179 25 p0127 25 p0127 25 p0127 25 p0122 25 p0176	N80-13719 # N80-13718 # N80-13718 # N80-13720 # N80-11254 # N80-14576 # N80-12594 # N80-12595 # N80-12594 # N80-12594 # N80-15619 #	PB-299575/1	
NTIS/PS-79/0817/1 NTIS/PS-79/0818/9 NTIS/PS-79/0818/7 NYSERDA-78/18  OPPORTUNITY-ERIEF-15  ORAU-158  ORAU/IEA-78-17(M) ORAU/IEA-78-20(M) ORAU/IEA-79-8(R)	25 p0148 25 p0148 25 p0148 25 p0107 25 p0107 25 p0164 25 p0179 25 p0127 25 p0127 25 p0127 25 p0122 25 p0176	N80-13719 # N80-13718 # N80-13718 # N80-13720 # N80-11254 # N80-14576 # N80-12594 # N80-12595 # N80-12594 # N80-12594 # N80-15619 #	PB-299575/1	

PNL-2742			
PNL-2763 25 p0097 N80-10613 #	SAND-79-0787	25 50179	NOO-15481 4
		25 PO176	NOO-13041 #
		25 pt 124	N80-12563 #
PNL-2768 25 p0092 N80-10382 #	SAND-79-0868C	25 p0137	N80-13431 #
PNL-2935 25 p0160 N80-14534 #	SAND-79-0890C	25 p0137	N80-13375 #
	SAND-79-0933C	25 p0181	N80-15908 #
PR-1 25 p0098 N80-10628 #	SAND-79-0997C	25 p0160	N80-14538 #
PR-9 25 p0169 NEO-15293 #	SAND-79-1053C	25 n0144	NRO-13671 #
· •	SAND-79-1165C		
PRF-8601 25 p0169 N80-15296 #		25 00172	NOO-15577 #
23 po 103 100 13230 v			
DDD1 -79 CD #2	SAND-79-1400	25 p0133	N80-13272 #
PRRL-78-CR-42 25 p0143 N80-13670 #	SAND-79-1428C	25 p0124	N80-12559 #
	SAND-79-1642C	25 p0178	N80-15637 #
PUBL-96-10 25 p0109 N80-11557 #	SAND-79-1669C	25 p0140	N80-13640 #
•	SAND-79-7005	25 50100	NOO-10650 #
QPR-10 25 p0134 N80-13277 #		25 p0100	NOO-10030 #
25 poist 100 132// p			
OF 1	SAND-79-7021		
QR-1 25 p0106 N80-11249 #	SAND-79-7023	25 p0173	N80-15586 #
QR-1 25 p0133 N80-13272 #	SAND-79-7040	25 p0143	N80-13661 #
QR-1 25 p0173 N80-15591 #	SAND-79-8033	25 p0160	N80-14532 #
QR-2 25 p0168 N80-15277 #	SAND-79-8183	25 p0146	N80-13698 #
QR-3 25 p0096 N80-10603*#	SAND-79-8187		
QR-3 25 p0134 N80-13280 #			
	SAND-79-8508	25 PU1/5	NOU-136U2 #
QR-8 25 p0150 N80-14258 #			
	SAPR-3	25 p0155	N 80-14491*#
EAND/R-2257-DOE			
RAND/R-2335-DOE 25 p0099 N80-10636 #	SAR-1	25 p0171	N80-15569 #
•			
RE-586 25 p0091 N80-10329 #	SAWE PAPER 1301	25 p0094	180-205#1±
	CARP DADED 1306	25 P0000	100 200417
PPDE 70 (202	SAWE PAPER 1305	25 puu86	A80-20643
REPT-78/293 25 p0180 N80-15687 #			
	SD-78-AP-0023-4-VOL-4	25 p0119	N80-12106*#
RHO-SA-107 25 p0095 N80-10504 #	•	•	
	SDSB-79/14	25 n0108	NAO-11487 4
RLO-788-5 25 p0112 N80-11589 #		23 PU 100	200 1140,7 F
RLO-2227-T22-13 25 p0169 NEO-15293 #	CPTC_70/1	25 - 2464	NOO 40570 4
DIO 2227 -122-13	SEIS-79/1	25 p0164	N80-14574 #
RLO-2227-T31-4-PT-A/B 25 p0148 N80-13723 #			
	SERI/PR-13-054	25 p0144	N80-13674 #
RLO/2221-T14/1	SERI/PR-35-313	25 E0124	N80-12565 #
	SERI/RR-34-152	25 p0172	N80-15570 #
RM-690 25 p0094 N80-10414 #	SERI/RR-53-045	25 50126	NBO-13579 #
RR-9 25 p0108 N80-11551 #			
AA-9	SERI/TP-34-089	25 p0161	N80-14546 #
	SERI/TP-34-180	25 p0172	N80-15571 <b>#</b>
SAN-0034/263-1 25 p0141 N80-13643 #	SERI/TP-35-208	25 p0102	N80-10663 #
SAN-0113-T3 25 p0145 N80-13678 #	SERI/TP-35-254		
SAN-0115-T1 25 p0168 N80-15276 #	SERI/TP-35-279		
SAN-1331-T1 25 p0174 N80-15596 #	SERI/TP-35-300		
SAN-1590-1/3-VOL-3 25 p0101 N80-10654 #	SERI/TP-51-158		
	3Ft7/TE-31-130		
SAN=1592-1			
SAN-1592-1	SERI/TP-52-138	25 p0178	N80-15639 #
SAN-1592-1	SERI/TP-52-138	25 p0178 25 p0141	N80-15639 # N80-13649 #
SAN-1592-1	SERI/TP-52-138	25 p0178 25 p0141	N80-15639 # N80-13649 #
SAN-1592-1	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-144	25 p0178 25 p0141 25 p0161	N80-15639 # N80-13649 # N80-14547 #
SAN-1592-1	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-144 SERI/TP-62-113	25 p0178 25 p0141 25 p0161 25 p0161	N80-15639 # N80-13649 # N80-14547 # N80-14548 #
SAN-1592-1	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-144 SERI/TP-62-113 SERI/TP-69-221	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113	N80-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 #
SAND-78-0958C 25 p0174 N80-10658 # SAND-78-0958C 25 p0174 N80-13700 #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-144 SERI/TP-62-113 SERI/TP-62-21 SERI/TR-33-067	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0115	N80-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 #
SAN-1592-1       25 p0101 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 N80-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0977       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-144 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0115 25 p0143	N80-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-13669 #
SAN-1592-1       25 p0101 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 N80-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0977       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0983       25 p0173 N80-15585 #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-144 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-088	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0115 25 p0143 25 p0132	N80-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 #
SAN-1592-1     25 p0101 N80-10658 #       SAN-1605/7-VCL-1     25 p0146 N80-13700 #       SAND-77-1701     25 p0132 N80-12709 #       SAND-78-0958C     25 p0174 N80-15600 #       SAND-78-0981     25 p0111 N80-11580 #       SAND-78-0983     25 p0173 N80-15585 #       SAND-78-0986     25 p0125 N80-12571 #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-144 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0113 25 p0143 25 p0132 25 p0165	N80-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-12710 # N80-12710 # N80-14617 #
SAN-1592-1       25 p0101 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 N80-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0977       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0983       25 p0173 N80-15585 #         SAND-78-0986       25 p0125 N80-12571 #         SAND-78-1088       25 p0114 N80-11613 #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-30-67 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0113 25 p0143 25 p0132 25 p0165 25 p0158	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14617 # N80-14520 #
SAN-1592-1       25       p0101       N80-10658       #         SAN-1605/7-VCL-1       25       p0146       N80-13700       #         SAND-78-0958C       25       p0132       N80-12709       #         SAND-78-0958C       25       p0174       N80-15600       #         SAND-78-0982       25       p0111       N80-11580       #         SAND-78-0983       25       p0173       N80-15585       #         SAND-78-0986       25       p0125       N80-12571       #         SAND-78-1088       25       p0114       N80-11613       #         SAND-78-1177       25       p0140       N80-13642       #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-144 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0113 25 p0143 25 p0132 25 p0165 25 p0158	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14617 # N80-14520 #
SAN-1592-1       25 p0101 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 N80-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0981       25 p0111 N80-11582 #         SAND-78-0982       25 p0111 N80-15585 #         SAND-78-0986       25 p0125 N80-12571 #         SAND-78-1088       25 p0140 N80-11613 #         SAND-78-1177       25 p0140 N80-13642 #         SAND-78-1260       25 p0140 N80-13642 #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-144 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-108 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-36-1-159 SERI/TR-51-159	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0115 25 p0125 25 p0158 25 p0158 25 p0158	N80-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11617 # N80-13669 # N80-12710 # N80-14519 # N80-14519 #
SAN-1592-1       25 p0101 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 N80-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0981       25 p0111 N80-11582 #         SAND-78-0982       25 p0111 N80-15585 #         SAND-78-0986       25 p0125 N80-12571 #         SAND-78-1088       25 p0140 N80-11613 #         SAND-78-1177       25 p0140 N80-13642 #         SAND-78-1260       25 p0140 N80-13642 #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0143 25 p0165 25 p0158 25 p0158	N8 0-15639
SAN-1592-1       25 p0101 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 N80-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0977       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0986       25 p0173 N80-15585 #         SAND-78-1088       25 p0114 N80-11613 #         SAND-78-1177       25 p0140 N80-13571 #         SAND-78-1176       25 p0132 N80-12894 #         SAND-78-1769       25 p0111 N80-11581 #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-144 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-108 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-36-1-159 SERI/TR-51-159	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0143 25 p0165 25 p0158 25 p0158	N8 0-15639
SAN-1592-1       25       p0101       N80-10658       #         SAN-1605/7-VCL-1       25       p0146       N80-13700       #         SAND-78-0958C       25       p0132       N80-12709       #         SAND-78-0977       25       p0111       N80-11580       #         SAND-78-0982       25       p0111       N80-11582       #         SAND-78-0983       25       p0173       N80-15585       #         SAND-78-0986       25       p0125       N80-12571       #         SAND-78-1088       25       p0114       N80-11613       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12894       #         SAND-78-1769       25       p0111       N80-11581       #         SAND-78-1851C       25       p0126       N80-12579       #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-144 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-54-066	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0143 25 p0158 25 p0158 25 p0158 25 p0146	N80-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11617 # N80-13669 # N80-12710 # N80-14517 # N80-14519 # N80-14519 # N80-14519 # N80-13699 #
SAN-1592-1       25       p0101       N80-10658       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0958C       25       p0171       N80-11580       #         SAND-78-0982       25       p0111       N80-11582       #         SAND-78-0983       25       p0173       N80-12585       #         SAND-78-0986       25       p0125       N80-12571       #         SAND-78-1088       25       p0140       N80-13642       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12894       #         SAND-78-1851c       25       p0111       N80-12579       #         SAND-78-1865C       25       p0117       N80-15624       #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0143 25 p0158 25 p0158 25 p0158 25 p0146	N80-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11617 # N80-13669 # N80-12710 # N80-14517 # N80-14519 # N80-14519 # N80-14519 # N80-13699 #
SAN-1592-1       25 p0101 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 Ne0-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0977       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0983       25 p0173 N80-15585 #         SAND-78-0986       25 p0125 N80-12571 #         SAND-78-1088       25 p0114 N80-11613 #         SAND-78-1177       25 p0190 N80-13602 #         SAND-78-1260       25 p0132 N80-12894 #         SAND-78-1769       25 p0111 N80-11581 #         SAND-78-1851c       25 p0112 N80-12579 #         SAND-78-1865C       25 p0177 N80-15624 #         SAND-78-1982C       25 p0177 N80-12590 #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-35-047 SERI/TR-36-048 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-54-066 SLAC-PUB-2203	25 p0178 25 p0141 25 p0161 25 p0161 25 p0115 25 p0115 25 p0143 25 p0165 25 p0158 25 p0158 25 p0158 25 p0146 25 p0146	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14617 # N80-14519 # N80-14519 # N80-13699 # N80-13699 # N80-11604 #
SAN-1592-1       25       p0101       N80-10658       #         SAN-1605/7-VCL-1       25       p0146       N80-13700       #         SAND-78-0958C       25       p0132       N80-12600       #         SAND-78-0958C       25       p0111       N80-15600       #         SAND-78-0987       25       p0111       N80-11580       #         SAND-78-09883       25       p0113       N80-15585       #         SAND-78-1088       25       p0125       N80-12571       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12894       #         SAND-78-1865       25       p0111       N80-11581       #         SAND-78-1865C       25       p0126       N80-12579       #         SAND-78-1982C       25       p0177       N80-15624       #         SAND-78-1999C       25       p0176       N80-15623       #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-35-047 SERI/TR-36-048 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-54-066 SLAC-PUB-2203	25 p0178 25 p0141 25 p0161 25 p0161 25 p0115 25 p0115 25 p0143 25 p0165 25 p0158 25 p0158 25 p0158 25 p0146 25 p0146	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14617 # N80-14519 # N80-14519 # N80-13699 # N80-13699 # N80-11604 #
SAN-1592-1       25       p0101       N80-10658       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0958C       25       p0111       N80-11580       #         SAND-78-0983       25       p0111       N80-11582       #         SAND-78-0983       25       p0173       N80-12571       #         SAND-78-0986       25       p0125       N80-12571       #         SAND-78-1088       25       p0140       N80-11613       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12894       #         SAND-78-1865C       25       p0111       N80-11581       #         SAND-78-1865C       25       p0117       N80-12579       #         SAND-78-1982C       25       p0177       N80-12590       #         SAND-78-1999C       25       p0177       N80-12590       #         SAND-78-2906C       25       p0176       N80-15623       #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAE/0010-78-10 SOLAE/0801-79-01	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0115 25 p0132 25 p0158 25 p0159 25 p0129	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14519 # N80-14519 # N80-14519 # N80-13699 # N80-12585 # N80-12607 # N80-13699 # N80-12607
SAN-1592-1       25       p0101       N80-10658       #         SAND-1605/7-VCL-1       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0958C       25       p0171       N80-15600       #         SAND-78-0987       25       p0111       N80-11582       #         SAND-78-0988       25       p0173       N80-15585       #         SAND-78-0988       25       p0172       N80-15585       #         SAND-78-1088       25       p0114       N80-11571       #         SAND-78-1088       25       p0114       N80-11613       #         SAND-78-1177       25       p0140       N80-13602       #         SAND-78-1260       25       p0132       N80-12594       #         SAND-78-1769       25       p0111       N80-11581       #         SAND-78-18651C       25       p0111       N80-12579       #         SAND-78-1865C       25       p0177       N80-15624       #         SAND-78-1999C       25       p0176       N80-12599       #         SAND-78-1999C       25       p0176       N80-12623	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-79-01 SOLAR/0801-79-01 SOLAR/0811-79-01	25 p0178 25 p0141 25 p0161 25 p0161 25 p0161 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0118 25 p01143 25 p01126 25 p0129 25 p0129	N80-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11617 # N80-13669 # N80-14617 # N80-14519 # N80-14519 # N80-13699 # N80-13699 # N80-12585 # N80-12585 # N80-12585 # N80-14539 # N80-14539 # N80-12585 # N80-12585 # N80-14539 # N80-14539 # N80-14539 # N80-14539 # N80-12585 # N80-12585 # N80-14539 # N80-14
SAN-1592-1       25       p0101       N80-10658       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-15600       #         SAND-78-0958C       25       p0174       N80-15600       #         SAND-78-0982       25       p0111       N80-11582       #         SAND-78-0983       25       p0173       N80-15585       #         SAND-78-0986       25       p0125       N80-12571       #         SAND-78-1088       25       p0114       N80-11613       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1160       25       p0132       N80-12894       #         SAND-78-1860       25       p0111       N80-11613       #         SAND-78-1177       25       p0140       N80-12894       #         SAND-78-1860       25       p0111       N80-12599       #         SAND-78-1865C       25       p0117       N80-12509       #         SAND-78-1865C       25       p0177       N80-15624       #         SAND-78-1982C       25       p0177       N80-15624	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-79-01 SOLAR/0801-79-01 SOLAR/0811-79-01	25 p0178 25 p0141 25 p0161 25 p0161 25 p0161 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0118 25 p0118 25 p0118	N80-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11617 # N80-13669 # N80-14617 # N80-14519 # N80-14519 # N80-13699 # N80-13699 # N80-12585 # N80-12585 # N80-12585 # N80-14539 # N80-14539 # N80-12585 # N80-12585 # N80-14539 # N80-14539 # N80-14539 # N80-14539 # N80-12585 # N80-12585 # N80-14539 # N80-14
SAN-1592-1       25       p0101       N80-10658       #         SAND-1605/7-VCL-1       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0958C       25       p0171       N80-15600       #         SAND-78-0987       25       p0111       N80-11582       #         SAND-78-0988       25       p0173       N80-15585       #         SAND-78-0988       25       p0172       N80-15585       #         SAND-78-1088       25       p0114       N80-11571       #         SAND-78-1088       25       p0114       N80-11613       #         SAND-78-1177       25       p0140       N80-13602       #         SAND-78-1260       25       p0132       N80-12594       #         SAND-78-1769       25       p0111       N80-11581       #         SAND-78-18651C       25       p0111       N80-12579       #         SAND-78-1865C       25       p0177       N80-15624       #         SAND-78-1999C       25       p0176       N80-12599       #         SAND-78-1999C       25       p0176       N80-12623	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-104 SERI/TR-51-106 SLAC-PUB-2203 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/1010-78/14	25 p0178 25 p0141 25 p0161 25 p0161 25 p0161 25 p0113 25 p0115 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0118 25 p0119 25 p01101	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14519 # N80-14519 # N80-13699 # N80-12585 # N80-12585 # N80-12585 # N80-14539 # N80-14539 # N80-12585 # N80-12585 # N80-12585 # N80-14539 # N80-10659 # N80-10659 # N80-10659 # N80-10659 # N80-14539 # N80-10659 # N80-10659 # N80-10659 # N80-10659 # N80-10659 # N80-14539 # N80-10659 # N80-1
SAN-1592-1       25       p0101       N80-10658       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0958C       25       p0171       N80-1580       #         SAND-78-0982       25       p0111       N80-11582       #         SAND-78-0983       25       p0173       N80-12571       #         SAND-78-0986       25       p0125       N80-12571       #         SAND-78-1088       25       p0114       N80-13642       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12894       #         SAND-78-18126       25       p0111       N80-11581       #         SAND-78-1865C       25       p0117       N80-12579       #         SAND-78-1892C       25       p0177       N80-12590       #         SAND-78-1999C       25       p0176       N80-12590       #         SAND-78-2094C       25       p0176       N80-15623       #         SAND-78-2094C       25       p0199       N80-14627 <t< td=""><td>SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-104 SERI/TR-51-106 SLAC-PUB-2203 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/1010-78/14</td><td>25 p0178 25 p0141 25 p0161 25 p0161 25 p0161 25 p0113 25 p0115 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0118 25 p0119 25 p01101</td><td>N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14519 # N80-14519 # N80-13699 # N80-12585 # N80-12585 # N80-12585 # N80-14539 # N80-14539 # N80-12585 # N80-12585 # N80-12585 # N80-14539 # N80-10659 # N80-10659 # N80-10659 # N80-10659 # N80-14539 # N80-10659 # N80-10659 # N80-10659 # N80-10659 # N80-10659 # N80-14539 # N80-10659 # N80-1</td></t<>	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-104 SERI/TR-51-106 SLAC-PUB-2203 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/1010-78/14	25 p0178 25 p0141 25 p0161 25 p0161 25 p0161 25 p0113 25 p0115 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0118 25 p0119 25 p01101	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14519 # N80-14519 # N80-13699 # N80-12585 # N80-12585 # N80-12585 # N80-14539 # N80-14539 # N80-12585 # N80-12585 # N80-12585 # N80-14539 # N80-10659 # N80-10659 # N80-10659 # N80-10659 # N80-14539 # N80-10659 # N80-10659 # N80-10659 # N80-10659 # N80-10659 # N80-14539 # N80-10659 # N80-1
SAN-1592-1       25 p0101 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 Ne0-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0977       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0988       25 p0173 N80-15555 #         SAND-78-0986       25 p0125 N80-12571 #         SAND-78-1088       25 p0114 N80-11613 #         SAND-78-1177       25 p0190 N80-13602 #         SAND-78-1260       25 p0132 N80-12579 #         SAND-78-1769       25 p0111 N80-11581 #         SAND-78-1851C       25 p0112 N80-12579 #         SAND-78-1865C       25 p0177 N80-15624 #         SAND-78-1999C       25 p0177 N80-15623 #         SAND-78-2094C       25 p0159 N80-14527 #         SAND-78-2186C       25 p0159 N80-14527 #         SAND-78-2186C       25 p0179 N80-15663 #         SAND-78-2186C       25 p0179 N80-15663 #         SAND-78-2186C       25 p0179 N80-15666 #         SAND-78-2186C       25 p0171 N80-15566 #         SAND-78-2187C       25 p0172 N80-15578 #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-79-01 SOLAR/0801-79-01 SOLAR/0811-79-01	25 p0178 25 p0141 25 p0161 25 p0161 25 p0161 25 p0113 25 p0115 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0118 25 p0119 25 p01101	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14519 # N80-14519 # N80-13699 # N80-12585 # N80-12585 # N80-12585 # N80-14539 # N80-14539 # N80-12585 # N80-12585 # N80-12585 # N80-14539 # N80-10659 # N80-10659 # N80-10659 # N80-10659 # N80-14539 # N80-10659 # N80-10659 # N80-10659 # N80-10659 # N80-10659 # N80-14539 # N80-10659 # N80-1
SAN-1592-1       25       p0101       N80-10658       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-15600       #         SAND-78-0987       25       p0111       N80-11580       #         SAND-78-0983       25       p0111       N80-11582       #         SAND-78-0986       25       p0173       N80-12571       #         SAND-78-1088       25       p0140       N80-12571       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12871       #         SAND-78-1809       25       p0140       N80-13642       #         SAND-78-1809       25       p0132       N80-12871       #         SAND-78-1800       25       p0140       N80-13642       #         SAND-78-1800       25       p0132       N80-12894       #         SAND-78-18160       25       p0177       N80-12501       #         SAND-78-2094C       25       p0177       N80-12502       #         SAND-78-2094C       25       p0176       N80-15623       #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-79-01 SOLAR/0801-79-01 SOLAR/0811-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/0811-79/01	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0118 25 p01146 25 p0113 25 p0126 25 p0126 25 p0120 25 p01101 25 p01101	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-13699 # N80-12585 # N80-12585 # N80-12585 # N80-12589 # N80-15699 #
SAN-1592-1       25 p0101 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 N80-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0987       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0983       25 p0173 N80-12571 #         SAND-78-0986       25 p0125 N80-12571 #         SAND-78-1088       25 p0140 N80-13642 #         SAND-78-1177       25 p0140 N80-13642 #         SAND-78-1769       25 p0112 N80-12894 #         SAND-78-1851C       25 p0112 N80-12579 #         SAND-78-1865C       25 p0117 N80-12581 #         SAND-78-1899C       25 p0117 N80-12590 #         SAND-78-2094C       25 p0176 N80-12590 #         SAND-78-2094C       25 p0176 N80-14527 #         SAND-78-2186C       25 p0196 N80-10608 #         SAND-78-2187C       25 p0171 N80-15578 #         SAND-78-2187C       25 p0172 N80-12572 #         SAND-78-2228       25 p0172 N80-12572 #         SAND-78-2228       25 p0170 N80-12572 #         SAND-78-2228C       25 p0170 N80-12572 #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-51-10 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0811-79/01	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0160 25 p01101 25 p01101 25 p010101 25 p010101 25 p010101	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-14519 # N80-14519 # N80-14519 # N80-14519 # N80-14518 # N80-12585 # N80-12607 # N80-12607 # N80-12607 # N80-12607 # N80-15699 # N80-15699 # N80-15699 # N80-14508 # N80-14508 # N80-14509 # N80-14509 # N80-14509 # N80-14509 # N80-14509 # N80-14508 # N80-1
SAN-1592-1       25 p0101 N80-10658 #         SAND-77-1701       25 p0146 N80-13700 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0977       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0983       25 p0174 N80-15585 #         SAND-78-0986       25 p0175 N80-12571 #         SAND-78-1088       25 p0112 N80-12571 #         SAND-78-1177       25 p0190 N80-13642 #         SAND-78-1260       25 p0190 N80-13642 #         SAND-78-1851C       25 p0112 N80-11581 #         SAND-78-1865C       25 p0112 N80-12579 #         SAND-78-1865C       25 p0126 N80-12579 #         SAND-78-1999C       25 p0177 N80-15624 #         SAND-78-2096C       25 p0177 N80-12590 #         SAND-78-2096C       25 p0179 N80-14623 #         SAND-78-2163C       25 p0179 N80-14527 #         SAND-78-2186C       25 p0179 N80-14527 #         SAND-78-2187C       25 p0171 N80-15578 #         SAND-78-2282C       25 p0172 N80-12572 #         SAND-78-2292C       25 p0177 N80-12572 #         SAND-78-22305C       25 p0177 N80-13710 #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-30-67 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0010-78-10 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0811-79/01 TABB-79-7  TID-28840-DRAFT TID-28840-DRAFT TID-288443-DRAFT	25 p0178 25 p0161 25 p0161 25 p0161 25 p0162 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0166 25 p01946 25 p0101 25 p0101 25 p0101 25 p0101 25 p0101 25 p0101 25 p0101 25 p0101	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-14617 # N80-14617 # N80-14518 # N80-14518 # N80-13669 # N80-13669 # N80-13669 # N80-13669 # N80-13669 # N80-15669 # N80-15669 # N80-15699 # N80-15699 # N80-15699 # N80-15699 # N80-14548 # N80-14544 # N80-14548 # N80-14544 # N80-14548 # N80-14548 # N80-14548 # N80-14548 # N80-14544 # N80-14544 # N80-14544 # N80-14544 # N80-14544 # N80-14548 # N80-14548 # N80-14544 # N80-14548 # N80-1
SAN-1592-1       25       p0101       N80-10658       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-15600       #         SAND-78-0987       25       p0111       N80-11580       #         SAND-78-0983       25       p0111       N80-11582       #         SAND-78-0986       25       p0173       N80-12571       #         SAND-78-1088       25       p0140       N80-12571       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12571       #         SAND-78-1808       25       p0140       N80-15613       #         SAND-78-1809       25       p0140       N80-13624       #         SAND-78-18160       25       p0132       N80-12894       #         SAND-78-1820       25       p0177       N80-12599       #         SAND-78-1820       25       p0177       N80-12591       #         SAND-78-1999C       25       p0177       N80-12591       #         SAND-78-2094C       25       p0177       N80-12590       #	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-35-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-79-016 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0811-79/11 TAEB-79-7 TID-28844-DRAFT TID-28844-DRAFT TID-28844-DRAFT	25 p0178 25 p0141 25 p0161 25 p0161 25 p0113 25 p0113 25 p0115 25 p0158 25 p0158 25 p0158 25 p0158 25 p0192 25 p0192 25 p0192 25 p0192 25 p0192 25 p0180 25 p0180 25 p0180 25 p0157 25 p0167 25 p0167 25 p0167	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14617 # N80-14619 # N80-14519 # N80-14519 # N80-14519 # N80-14519 # N80-14607 # N80-14607 # N80-15699 # N80-15699 # N80-15699 # N80-15699 # N80-15699 # N80-14544 # N80-1
SAN-1592-1       25       p0101       N80-10658       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0958C       25       p0171       N80-1580       #         SAND-78-0983       25       p0111       N80-11582       #         SAND-78-0983       25       p0173       N80-12571       #         SAND-78-0986       25       p0125       N80-12571       #         SAND-78-1088       25       p0114       N80-11613       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12894       #         SAND-78-18126       25       p0132       N80-12894       #         SAND-78-1865C       25       p0117       N80-12581       #         SAND-78-1865C       25       p0117       N80-12591       #         SAND-78-1899C       25       p0177       N80-12590       #         SAND-78-2994C       25       p0176       N80-12590       #         SAND-78-2094C       25       p0179       N80-14527 <t< td=""><td>SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TR-36-067 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0010-78-10 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 TID-28844-DRAFT TID-28844-DRAFT TID-28844-DRAFT TID-28844-DRAFT TID-28846-</td><td>25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0160 25 p01101 25 p01101 25 p01101 25 p0160 25 p0160 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161</td><td>N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-14518 # N80-12585 # N80-12607 # N80-14539 # N80-15699 # N80-15699 # N80-14544 # N80-14544 # N80-14544 # N80-14543 # N80-14543 # N80-14543 # N80-14543 # N80-14543 # N80-14585</td></t<>	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TR-36-067 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0010-78-10 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 TID-28844-DRAFT TID-28844-DRAFT TID-28844-DRAFT TID-28844-DRAFT TID-28846-	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0158 25 p0160 25 p01101 25 p01101 25 p01101 25 p0160 25 p0160 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-14518 # N80-12585 # N80-12607 # N80-14539 # N80-15699 # N80-15699 # N80-14544 # N80-14544 # N80-14544 # N80-14543 # N80-14543 # N80-14543 # N80-14543 # N80-14543 # N80-14585
SAN-1592-1       25 p0101 N80-10658 #         SAND-77-1701       25 p0146 N80-13700 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0977       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0983       25 p0174 N80-15585 #         SAND-78-0986       25 p0175 N80-12571 #         SAND-78-1088       25 p0112 N80-12571 #         SAND-78-1177       25 p0190 N80-13642 #         SAND-78-1260       25 p0190 N80-13642 #         SAND-78-1851C       25 p0112 N80-11581 #         SAND-78-1865C       25 p0112 N80-12579 #         SAND-78-1865C       25 p0112 N80-15624 #         SAND-78-1982C       25 p0117 N80-15624 #         SAND-78-1999C       25 p0176 N80-15623 #         SAND-78-2006C       25 p0176 N80-15623 #         SAND-78-2004C       25 p0179 N80-10608 #         SAND-78-2186C       25 p0179 N80-15578 #         SAND-78-2187C       25 p0171 N80-15578 #         SAND-78-228C       25 p0171 N80-15578 #         SAND-78-228C       25 p0172 N80-12572 #         SAND-78-2305C       25 p0177 N80-12572 #         SAND-78-2305C       25 p0171 N80-15578 #         SAND-78-2305C       25 p0174 N80-13578 #         SAND-78-2305	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-30-67 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-35-048 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0010-78-10 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0810-78-14  TAEB-79-7  TID-28844-DRAFT TID-28844-DRAFT TID-28846 TID-28846 TID-28846-DRAFT	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0165 25 p01946 25 p0113 25 p0101 25 p0101 25 p0101 25 p0160 25 p0160 25 p0160 25 p0160 25 p0160 25 p0160 25 p0160 25 p0160 25 p0161 25 p0161 25 p0161 25 p0165	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14617 # N80-14619 # N80-14518 # N80-13669 # N80-13669 # N80-15669 # N80-15669 # N80-15669 # N80-15669 # N80-15699 # N80-14544 # N80-14544 # N80-14544 # N80-14544 # N80-13287
SAN-1592-1       25       p0101       N80-10658       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0958C       25       p0171       N80-1580       #         SAND-78-0983       25       p0111       N80-11582       #         SAND-78-0983       25       p0173       N80-12571       #         SAND-78-0986       25       p0125       N80-12571       #         SAND-78-1088       25       p0114       N80-11613       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12894       #         SAND-78-18126       25       p0132       N80-12894       #         SAND-78-1865C       25       p0117       N80-12581       #         SAND-78-1865C       25       p0117       N80-12591       #         SAND-78-1899C       25       p0177       N80-12590       #         SAND-78-2994C       25       p0176       N80-12590       #         SAND-78-2094C       25       p0179       N80-14527 <t< td=""><td>SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-30-67 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-35-048 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0010-78-10 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0810-78-14  TAEB-79-7  TID-28844-DRAFT TID-28844-DRAFT TID-28846 TID-28846 TID-28846-DRAFT</td><td>25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0165 25 p01946 25 p0113 25 p0101 25 p0101 25 p0101 25 p0160 25 p0160 25 p0160 25 p0160 25 p0160 25 p0160 25 p0160 25 p0160 25 p0161 25 p0161 25 p0161 25 p0165</td><td>N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14617 # N80-14619 # N80-14518 # N80-13669 # N80-13669 # N80-15669 # N80-15669 # N80-15669 # N80-15669 # N80-15699 # N80-14544 # N80-14544 # N80-14544 # N80-14544 # N80-13287 /td></t<>	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-30-67 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-35-048 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0010-78-10 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0810-78-14  TAEB-79-7  TID-28844-DRAFT TID-28844-DRAFT TID-28846 TID-28846 TID-28846-DRAFT	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0165 25 p01946 25 p0113 25 p0101 25 p0101 25 p0101 25 p0160 25 p0160 25 p0160 25 p0160 25 p0160 25 p0160 25 p0160 25 p0160 25 p0161 25 p0161 25 p0161 25 p0165	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14617 # N80-14619 # N80-14518 # N80-13669 # N80-13669 # N80-15669 # N80-15669 # N80-15669 # N80-15669 # N80-15699 # N80-14544 # N80-14544 # N80-14544 # N80-14544 # N80-13287
SAN-1592-1       25       p0101       N80-10658       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0987       25       p01171       N80-11580       #         SAND-78-0983       25       p0111       N80-11582       #         SAND-78-0983       25       p0173       N80-12571       #         SAND-78-0986       25       p0125       N80-12571       #         SAND-78-1088       25       p0112       N80-12571       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12579       #         SAND-78-1865C       25       p0132       N80-12894       #         SAND-78-1865C       25       p0117       N80-12579       #         SAND-78-1865C       25       p0177       N80-12579       #         SAND-78-1982C       25       p0177       N80-12590       #         SAND-78-1982C       25       p0177       N80-12590       #         SAND-78-2094C       25       p0177       N80-15624       <	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-30-67 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-35-048 SERI/TR-35-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAE/0010-78-10 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0811-79/01 TID-28844-DRAFT TID-28844 TID-28844-DRAFT TID-28846 TID-28846 TID-28848-DRAFT TID-28848-DRAFT	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0113 25 p0165 25 p0158 25 p0158 25 p0158 25 p0192 25 p0110 25 p0101 25 p0110 25 p0180 25 p0180 25 p0180 25 p0180 25 p0161 25 p0161 25 p0161 25 p0162 25 p0180 25 p0163 25 p0163	N8 0-15639 # N80-13649 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14519 # N80-14519 # N80-14519 # N80-14519 # N80-14519 # N80-14569 # N80-152607 # N80-152607 # N80-14543 # N80-14544 # N80-14544 # N80-14544 # N80-14544 # N80-14528 # N80-13285 # N80-13285 # N80-13285 # N80-13285 # N80-13286
SAN-1592-1       25 p0101 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 N80-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0987       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0986       25 p0125 N80-12571 #         SAND-78-1088       25 p0112 N80-12571 #         SAND-78-1177       25 p0140 N80-13642 #         SAND-78-1178       25 p0132 N80-12894 #         SAND-78-1769       25 p0112 N80-12894 #         SAND-78-1851C       25 p0112 N80-12579 #         SAND-78-1865C       25 p0117 N80-12581 #         SAND-78-1865C       25 p0117 N80-12581 #         SAND-78-1865C       25 p0117 N80-12590 #         SAND-78-1982C       25 p0177 N80-12590 #         SAND-78-2094C       25 p0176 N80-15623 #         SAND-78-2163C       25 p0176 N80-1563 #         SAND-78-2186C       25 p0171 N80-15578 #         SAND-78-2187C       25 p0171 N80-15578 #         SAND-78-2305C       25 p0171 N80-12570 #         SAND-78-2305C       25 p0171 N80-12570 #         SAND-78-2305C       25 p0197 N80-12572 #         SAND-78-2305C       25 p0197 N80-12572 #         SAND-78-	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-100 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0010-78-10 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/0801-79-01 TID-28844-DRAFT TID-28844-DRAFT TID-28848-DRAFT	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0115 25 p0132 25 p0158 25 p0158 25 p0158 25 p0165 25 p0160 25 p0113 25 p0112 25 p0129 25 p0101 25 p0160 25 p0160 25 p0160 25 p0160 25 p0165 25 p0166 25 p0166 25 p0168 25 p0135 25 p0168 25 p0135 25 p0168 25 p0135 25 p0168 25 p0135 25 p0135 25 p0135	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-14518 # N80-12585 # N80-12607 # N80-14544 # N80-14544 # N80-14544 # N80-14544 # N80-14544 # N80-14543 # N80-14543 # N80-14543 # N80-14544 # N80-14543 # N80-15287 # N80-1
SAN-1592-1       25 p0101 N80-10658 #         SAND-77-1701       25 p0146 N80-13700 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0977       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0983       25 p0174 N80-15585 #         SAND-78-0986       25 p0175 N80-12571 #         SAND-78-1088       25 p0112 N80-12571 #         SAND-78-1177       25 p019 N80-13642 #         SAND-78-1260       25 p019 N80-13642 #         SAND-78-1851C       25 p0112 N80-11581 #         SAND-78-1851C       25 p0112 N80-12579 #         SAND-78-1865C       25 p0177 N80-12579 #         SAND-78-1999C       25 p0177 N80-12590 #         SAND-78-2006C       25 p0177 N80-15623 #         SAND-78-2004C       25 p0177 N80-15623 #         SAND-78-2186C       25 p0179 N80-14527 #         SAND-78-2187C       25 p0179 N80-15639 #         SAND-78-2186C       25 p0179 N80-15623 #         SAND-78-2187C       25 p0171 N80-15578 #         SAND-78-2292C       25 p0171 N80-15578 #         SAND-78-2305C       25 p0172 N80-12572 #         SAND-78-2305C       25 p0171 N80-15578 #         SAND-78-2305C       25 p0171 N80-15578 #         SAND-78-2305	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-30-67 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-35-048 SERI/TR-36-088 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 TID-28844-DRAFT TID-28844-DRAFT TID-28844-DRAFT TID-28848-DRAFT TID-28849 TID-28852-DRAFT TID-28852-DRAFT TID-28852-DRAFT	25 p0178 25 p0161 25 p0161 25 p0161 25 p0161 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0165 25 p0160 25 p01101 25 p010101 25 p010101 25 p0160 25 p0160	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14617 # N80-14619 # N80-14518 # N80-13669 # N80-13669 # N80-15669 # N80-15699 # N80-15699 # N80-14544 # N80-14543 # N80-14543 # N80-14544 # N80-13286 # N80-13286 # N80-13286 # N80-14545 # N80-14545 # N80-14545 # N80-14544 # N80-13286 # N80-14545 # N80-1455 # N80-1455 # N80-145
SAN-1592-1       25       p0101       N80-10658       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0987       25       p0111       N80-11580       #         SAND-78-0983       25       p0111       N80-11582       #         SAND-78-0983       25       p0173       N80-12571       #         SAND-78-0986       25       p0125       N80-12571       #         SAND-78-1088       25       p0114       N80-12571       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12894       #         SAND-78-1865       25       p0140       N80-13642       #         SAND-78-1860       25       p0117       N80-12599       #         SAND-78-1880       25       p0117       N80-12599       #         SAND-78-1880       25       p0117       N80-12591       #         SAND-78-1880       25       p0117       N80-12581       #         SAND-78-1880       25       p0177       N80-12581       # <td>SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-79-016 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/0811-79/01 TID-28844-DRAFT TID-28844-DRAFT TID-28844-DRAFT TID-28849 TID-28852-DRAFT TID-28859-DRAFT TID-28855-DRAFT TID-28855-DRAFT TID-28855-DRAFT TID-28855-DRAFT</td> <td>25 p0178 25 p0161 25 p0161 25 p0163 25 p0113 25 p0113 25 p0165 25 p0158 25 p0158 25 p0158 25 p0192 25 p0192 25 p0192 25 p0192 25 p0192 25 p0192 25 p0180 25 p0180 25 p0180 25 p0180 25 p0185 25 p0180 25 p0185 25 p0165</td> <td>N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14519 # N80-14519 # N80-14519 # N80-14519 # N80-14539 # N80-15699 # N80-15699 # N80-14528 # N80-14528 # N80-14528 # N80-13285 # N80-13286 # N80-14521 # N80-14525 # N80-14525 # N80-14525 # N80-14521 # N80-14521 # N80-14521 # N80-14525 # N80-1</td>	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-79-016 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/0811-79/01 TID-28844-DRAFT TID-28844-DRAFT TID-28844-DRAFT TID-28849 TID-28852-DRAFT TID-28859-DRAFT TID-28855-DRAFT TID-28855-DRAFT TID-28855-DRAFT TID-28855-DRAFT	25 p0178 25 p0161 25 p0161 25 p0163 25 p0113 25 p0113 25 p0165 25 p0158 25 p0158 25 p0158 25 p0192 25 p0192 25 p0192 25 p0192 25 p0192 25 p0192 25 p0180 25 p0180 25 p0180 25 p0180 25 p0185 25 p0180 25 p0185 25 p0165	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14519 # N80-14519 # N80-14519 # N80-14519 # N80-14539 # N80-15699 # N80-15699 # N80-14528 # N80-14528 # N80-14528 # N80-13285 # N80-13286 # N80-14521 # N80-14525 # N80-14525 # N80-14525 # N80-14521 # N80-14521 # N80-14521 # N80-14525 # N80-1
SAN-1592-1       25       p0101       N80-13700       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0958C       25       p0111       N80-11580       #         SAND-78-0982       25       p0111       N80-11582       #         SAND-78-0983       25       p0173       N80-15585       #         SAND-78-0986       25       p0125       N80-12571       #         SAND-78-1088       25       p0114       N80-13642       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12871       #         SAND-78-181260       25       p0132       N80-12894       #         SAND-78-1869       25       p0111       N80-11581       #         SAND-78-1865C       25       p0111       N80-12591       #         SAND-78-1865C       25       p0177       N80-12590       #         SAND-78-1982C       25       p0177       N80-12590       #         SAND-78-2994C       25       p0176       N80-15624       <	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 TID-28849-DRAFT TID-28844-DRAFT TID-28846 TID-28848-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0165 25 p0160 25 p01101 25 p01101 25 p01101 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0165 25 p0165	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-14518 # N80-12607 # N80-12607 # N80-14539 # N80-15699 # N80-14544 # N80-14544 # N80-14544 # N80-14544 # N80-14545 # N80-14521 # N80-15287 # N80-1
SAN-1592-1       25 p0101 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 N80-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0977       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0983       25 p0173 N80-15585 #         SAND-78-0986       25 p0125 N80-12571 #         SAND-78-1088       25 p0114 N80-116613 #         SAND-78-1177       25 p0140 N80-13642 #         SAND-78-1260       25 p0132 N80-12579 #         SAND-78-1851C       25 p0112 N80-12581 #         SAND-78-1865C       25 p0117 N80-1562 #         SAND-78-1865C       25 p0117 N80-12590 #         SAND-78-1999C       25 p0177 N80-12590 #         SAND-78-2006C       25 p0177 N80-12590 #         SAND-78-2006C       25 p016 N80-12579 #         SAND-78-2186C       25 p0179 N80-12563 #         SAND-78-2186C       25 p0179 N80-12563 #         SAND-78-2186C       25 p0179 N80-12590 #         SAND-78-2187C       25 p0179 N80-12578 #         SAND-78-2187C       25 p0179 N80-12578 #         SAND-78-2288       25 p0171 N80-15623 #         SAND-78-2305C       25 p0172 N80-12578 #         SAND-78-2	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-35-048 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0010-78-10 SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0811-79/01 TID-28844-DRAPT TID-28844-DRAPT TID-28848-DRAPT TID-28848-DRAPT TID-28856-DRAPT TID-28856-DRAPT TID-28856-DRAPT TID-28964 TID-28964	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0165 25 p0165 25 p0160 25 p0101 25 p0101 25 p0101 25 p0160 25 p0160	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-14519 # N80-12585 # N80-12585 # N80-15699 # N80-14544 # N80-14544 # N80-14544 # N80-14544 # N80-14544 # N80-14544 # N80-14543 # N80-14544 # N80-14544 # N80-14544 # N80-14543 # N80-14545 # N80-14545 # N80-14545 # N80-14521 # N80-14545 # N80-14521 # N80-14545 # N80-14521 # N80-14545 # N80-14553 # N80-14513 # N80-1
SAN-1592-1       25       p0101       N80-10658       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0987       25       p0111       N80-11580       #         SAND-78-0983       25       p0111       N80-11582       #         SAND-78-0986       25       p0173       N80-12571       #         SAND-78-1088       25       p0112       N80-12571       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-11789       25       p01132       N80-12894       #         SAND-78-18165C       25       p01132       N80-12894       #         SAND-78-1882C       25       p0117       N80-13642       #         SAND-78-1880C       25       p0117       N80-12599       #         SAND-78-1899C       25       p0177       N80-12591       #         SAND-78-2094C       25       p0177       N80-15624       #         SAND-78-2094C       25       p0177       N80-15623       #         SAND-78-2186C       25       p0177       N80-15623	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-36-110 SERI	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0158 25 p0158 25 p0158 25 p0192 25 p0192 25 p0192 25 p0192 25 p0192 25 p0193 25	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-13669 # N80-12710 # N80-14519 # N80-14519 # N80-14519 # N80-14519 # N80-14519 # N80-14539 # N80-15699 # N80-14544 # N80-14543 # N80-14543 # N80-14543 # N80-13286 # N80-14543 # N80-15287 # N80-15287 # N80-15287 # N80-15287 # N80-14521 # N80-14478 # N80-144478 # N80-14478 # N80-
SAN-1592-1       25 p0101 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 N80-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0977       25 p0111 N80-11580 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0983       25 p0173 N80-15585 #         SAND-78-0986       25 p0125 N80-12571 #         SAND-78-1088       25 p0114 N80-116613 #         SAND-78-1177       25 p0140 N80-13642 #         SAND-78-1260       25 p0132 N80-12579 #         SAND-78-1851C       25 p0112 N80-12581 #         SAND-78-1865C       25 p0117 N80-1562 #         SAND-78-1865C       25 p0117 N80-12590 #         SAND-78-1999C       25 p0177 N80-12590 #         SAND-78-2006C       25 p0177 N80-12590 #         SAND-78-2006C       25 p016 N80-12579 #         SAND-78-2186C       25 p0179 N80-12563 #         SAND-78-2186C       25 p0179 N80-12563 #         SAND-78-2186C       25 p0179 N80-12590 #         SAND-78-2187C       25 p0179 N80-12578 #         SAND-78-2187C       25 p0179 N80-12578 #         SAND-78-2288       25 p0171 N80-15623 #         SAND-78-2305C       25 p0172 N80-12578 #         SAND-78-2	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-30-11 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 TID-28849-DRAFT TID-28844-DRAFT TID-28844-DRAFT TID-28848-DRAFT TID-28849 TID-28852-DRAFT TID-28855-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28964 TID-29000 TID-29000 TID-29000	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p013 25 p0158 25 p0158 25 p0158 25 p0158 25 p0165 25 p0160 25 p0110 25 p0110 25 p01010 25 p01010 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0162 25 p0162 25 p0165 25 p0165 25 p0161 25 p0165 25	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-14518 # N80-12607 # N80-12607 # N80-14539 # N80-15699 # N80-15699 # N80-15699 # N80-15699 # N80-15287 # N80-14544 # N80-14544 # N80-15287 # N80-15293 # N80-14545 # N80-14545 # N80-14545 # N80-14593 # N80-1612 # N80-14099 # N80-1612 # N80-14099 # N80-1099 # N80-1099 # N80-1612 # N80-14545 # N80-14545 # N80-14593 # N80-14593 # N80-14593 # N80-14099 # N80-1099 #
SAN-1592-1       25       p0101       N80-13700       #         SAND-77-1701       25       p0146       N80-13700       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0958C       25       p0111       N80-11580       #         SAND-78-098B2       25       p0111       N80-11580       #         SAND-78-098B3       25       p0173       N80-12571       #         SAND-78-098B6       25       p0173       N80-12571       #         SAND-78-108B       25       p0114       N80-115585       #         SAND-78-108B       25       p0140       N80-12571       #         SAND-78-1160       25       p0140       N80-13642       #         SAND-78-181260       25       p0112       N80-12894       #         SAND-78-1865C       25       p0111       N80-11581       #         SAND-78-1865C       25       p0117       N80-12591       #         SAND-78-1892C       25       p0177       N80-12590       #         SAND-78-1982C       25       p0177       N80-12590       #         SAND-78-2094C       25       p0176       N80-15623	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-30-11 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 TID-28849-DRAFT TID-28844-DRAFT TID-28844-DRAFT TID-28848-DRAFT TID-28849 TID-28852-DRAFT TID-28855-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28964 TID-29000 TID-29000 TID-29000	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p013 25 p0158 25 p0158 25 p0158 25 p0158 25 p0165 25 p0160 25 p0110 25 p0110 25 p01010 25 p01010 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0162 25 p0162 25 p0165 25 p0165 25 p0161 25 p0165 25	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-14518 # N80-12607 # N80-12607 # N80-14539 # N80-15699 # N80-15699 # N80-15699 # N80-15699 # N80-15287 # N80-14544 # N80-14544 # N80-15287 # N80-15293 # N80-14545 # N80-14545 # N80-14545 # N80-14593 # N80-1612 # N80-14099 # N80-1612 # N80-14099 # N80-1099 # N80-1099 # N80-1612 # N80-14545 # N80-14545 # N80-14593 # N80-14593 # N80-14593 # N80-14099 # N80-1099 #
SAN-1592-1       25 p0104 N80-10658 #         SAN-1605/7-VCL-1       25 p0146 N80-13700 #         SAND-77-1701       25 p0132 N80-12709 #         SAND-78-0958C       25 p0174 N80-15600 #         SAND-78-0977       25 p0111 N80-11582 #         SAND-78-0982       25 p0111 N80-11582 #         SAND-78-0983       25 p0173 N80-15585 #         SAND-78-0986       25 p0125 N80-12571 #         SAND-78-1088       25 p0114 N80-116613 #         SAND-78-1177       25 p0112 N80-12571 #         SAND-78-1260       25 p0132 N80-12571 #         SAND-78-1851C       25 p0112 N80-13642 #         SAND-78-1865C       25 p0112 N80-12579 #         SAND-78-1865C       25 p0117 N80-1562 #         SAND-78-1865C       25 p0117 N80-12590 #         SAND-78-1999C       25 p0177 N80-12590 #         SAND-78-2006C       25 p0176 N80-12590 #         SAND-78-2004C       25 p0176 N80-12590 #         SAND-78-2186C       25 p0179 N80-12590 #         SAND-78-2094C       25 p0179 N80-12590 #         SAND-78-2186C       25 p0179 N80-12590 #         SAND-78-2186C       25 p0179 N80-12590 #         SAND-78-2187C       25 p0172 N80-12590 #         SAND-78-2186C       25 p0172 N80-12590 #         SAND-78	SERI/TP-52-138 SERI/TP-63-114R SERI/TP-61-144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-35-048 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-164 SERI/TR-51-066  SLAC-PUB-2203  SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 TID-28844-DRAFT TID-28844-DRAFT TID-28844-DRAFT TID-28848-DRAFT TID-28848-DRAFT TID-28848-DRAFT TID-28858-DRAFT TID-28858-DRAFT TID-28858-DRAFT TID-28964 TID-29000 TID-29000 TID-29000 TID-290001 TID-290001 TID-290001 TID-29400/1	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0158 25 p0158 25 p0158 25 p0165 25 p0160 25 p0110 25 p0110 25 p0110 25 p0160 25 p0160 25 p0161 25 p0166 25 p0167 25 p0168 25 p0158 25 p0168 25 p0158 25 p0168 25 p0159 25 p0168 25 p0168 25 p0159 25 p0168 25 p0168 25 p0168 25 p0168 25 p0159 25 p0168	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-12687 # N80-12687 # N80-14549 # N80-14544 # N80-14544 # N80-14544 # N80-14543 # N80-14543 # N80-14543 # N80-14543 # N80-14544 # N80-14543 # N80-14544 # N80-14543 # N80-14544 # N80-14543 # N80-14543 # N80-14543 # N80-14544 # N80-14545 # N80-14555 # N80-14555 # N80-14555 # N80-14555 # N80-13655
SAN-1592-1       25       p0101       N80-13700       #         SAND-77-1701       25       p012       N80-13700       #         SAND-78-0958C       25       p0174       N80-15000       #         SAND-78-0997       25       p0111       N80-11580       #         SAND-78-0983       25       p0111       N80-11582       #         SAND-78-0983       25       p0173       N80-12571       #         SAND-78-0986       25       p01125       N80-12571       #         SAND-78-1088       25       p01125       N80-12571       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12894       #         SAND-78-1860       25       p0140       N80-13642       #         SAND-78-169       25       p0111       N80-11581       #         SAND-78-1865C       25       p0126       N80-12599       #         SAND-78-1882C       25       p0177       N80-12599       #         SAND-78-1982C       25       p0177       N80-15624       #         SAND-78-2094C       25       p0177       N80-15623	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-30-11 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 TID-28849-DRAFT TID-28844-DRAFT TID-28844-DRAFT TID-28848-DRAFT TID-28849 TID-28852-DRAFT TID-28855-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28964 TID-29000 TID-29000 TID-29000	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0158 25 p0158 25 p0158 25 p0165 25 p0160 25 p0110 25 p0110 25 p0110 25 p0160 25 p0160 25 p0161 25 p0166 25 p0167 25 p0168 25 p0158 25 p0168 25 p0158 25 p0168 25 p0159 25 p0168 25 p0168 25 p0159 25 p0168 25 p0168 25 p0168 25 p0168 25 p0159 25 p0168	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-12687 # N80-12687 # N80-14549 # N80-14544 # N80-14544 # N80-14544 # N80-14543 # N80-14543 # N80-14543 # N80-14543 # N80-14544 # N80-14543 # N80-14544 # N80-14543 # N80-14544 # N80-14543 # N80-14543 # N80-14543 # N80-14544 # N80-14545 # N80-14555 # N80-14555 # N80-14555 # N80-14555 # N80-13655
SAN-1592-1       25       p0101       N80-13700       #         SAND-77-1701       25       p0132       N80-12709       #         SAND-78-0958C       25       p0174       N80-12709       #         SAND-78-0958C       25       p0111       N80-11580       #         SAND-78-0982       25       p0111       N80-11580       #         SAND-78-0983       25       p0173       N80-12571       #         SAND-78-0986       25       p0125       N80-12571       #         SAND-78-1088       25       p0112       N80-12571       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12894       #         SAND-78-1769       25       p0111       N80-13642       #         SAND-78-1865C       25       p0117       N80-12581       #         SAND-78-1865C       25       p0117       N80-12581       #         SAND-78-1899C       25       p0177       N80-12590       #         SAND-78-2994C       25       p0176       N80-15623       #         SAND-78-2094C       25       p0176       N80-15578 <t< td=""><td>SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-30-121 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0811-79/01 TID-28849-DRAFT TID-28844-DRAFT TID-28846-DRAFT TID-28846-DRAFT TID-28849-DRAFT TID-28852-DRAFT TID-28852-DRAFT TID-28855-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28964 TID-29000 TID-29094 TID-29000 TID-29094 TID-29418 TID-29443</td><td>25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0160 25 p0101 25 p0101 25 p0101 25 p0101 25 p0101 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0162 25 p0162 25 p0163 25 p0164 25 p0165 25 p0166 25 p0172 25 p0180 25 p0193 25 p0142 25 p0146</td><td>N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-14519 # N80-14539 # N80-15699 # N80-14544 # N80-15287 # N80-15293 # N80-1655 # N80-13655 # N80-13655 # N80-13655 # N80-13655 # N80-13695 # N80-13</td></t<>	SERI/TP-52-138 SERI/TP-53-114R SERI/TP-61-1144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-30-121 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-36-110 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-51-194 SERI/TR-54-066  SLAC-PUB-2203  SOLAR/0801-79-01 SOLAR/0811-79/01 SOLAR/0811-79/01 SOLAR/0811-79/01 TID-28849-DRAFT TID-28844-DRAFT TID-28846-DRAFT TID-28846-DRAFT TID-28849-DRAFT TID-28852-DRAFT TID-28852-DRAFT TID-28855-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28856-DRAFT TID-28964 TID-29000 TID-29094 TID-29000 TID-29094 TID-29418 TID-29443	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0160 25 p0101 25 p0101 25 p0101 25 p0101 25 p0101 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0162 25 p0162 25 p0163 25 p0164 25 p0165 25 p0166 25 p0172 25 p0180 25 p0193 25 p0142 25 p0146	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-14519 # N80-14539 # N80-15699 # N80-14544 # N80-15287 # N80-15293 # N80-1655 # N80-13655 # N80-13655 # N80-13655 # N80-13655 # N80-13695 # N80-13
SAN-1592-1       25       p0101       N80-13700       #         SAND-77-1701       25       p012       N80-13700       #         SAND-78-0958C       25       p0174       N80-15000       #         SAND-78-0997       25       p0111       N80-11580       #         SAND-78-0983       25       p0111       N80-11582       #         SAND-78-0983       25       p0173       N80-12571       #         SAND-78-0986       25       p01125       N80-12571       #         SAND-78-1088       25       p01125       N80-12571       #         SAND-78-1177       25       p0140       N80-13642       #         SAND-78-1260       25       p0132       N80-12894       #         SAND-78-1860       25       p0140       N80-13642       #         SAND-78-169       25       p0111       N80-11581       #         SAND-78-1865C       25       p0126       N80-12599       #         SAND-78-1882C       25       p0177       N80-12599       #         SAND-78-1982C       25       p0177       N80-15624       #         SAND-78-2094C       25       p0177       N80-15623	SERI/TP-52-138 SERI/TP-63-114R SERI/TP-61-144 SERI/TP-61-113 SERI/TP-62-113 SERI/TP-69-221 SERI/TR-33-067 SERI/TR-35-047 SERI/TR-35-047 SERI/TR-35-048 SERI/TR-36-088 SERI/TR-36-110 SERI/TR-51-159 SERI/TR-51-163 SERI/TR-51-164 SERI/TR-51-164 SERI/TR-51-066  SLAC-PUB-2203  SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 SOLAR/0801-79-01 TID-28844-DRAFT TID-28844-DRAFT TID-28844-DRAFT TID-28848-DRAFT TID-28848-DRAFT TID-28848-DRAFT TID-28858-DRAFT TID-28858-DRAFT TID-28858-DRAFT TID-28964 TID-29000 TID-29000 TID-29000 TID-290001 TID-290001 TID-290001 TID-29400/1	25 p0178 25 p0161 25 p0161 25 p0161 25 p0113 25 p0113 25 p0132 25 p0158 25 p0158 25 p0158 25 p0158 25 p0160 25 p0101 25 p0101 25 p0101 25 p0101 25 p0101 25 p0161 25 p0161 25 p0161 25 p0161 25 p0161 25 p0162 25 p0162 25 p0163 25 p0164 25 p0165 25 p0166 25 p0172 25 p0180 25 p0193 25 p0142 25 p0146	N8 0-15639 # N80-13649 # N80-14547 # N80-14548 # N80-11598 # N80-11617 # N80-14617 # N80-14519 # N80-14519 # N80-14519 # N80-14519 # N80-14539 # N80-15699 # N80-14544 # N80-15287 # N80-15293 # N80-1655 # N80-13655 # N80-13655 # N80-13655 # N80-13655 # N80-13695 # N80-13

TP759.C52		
		25 p0093 N80-10392 #
	• • • • • • • • • • • • • • • • • • • •	25 puuss nou-10392 •
TQPR-2		25 p0145 N80-13678 #
IQPA-2	• • • • • • • • • • • • • • • • • • • •	25 PU (45 N80-136/8 #
mp_1		25 -0440 "00 44572 #
	• • • • • • • • • • • • • • • • • • • •	25 p0110 N80-11573 #
	• • • • • • • • • • • • • • • • • • • •	25 p0123 N80-12556 #
TR-9	• • • • • • • • • • • • • • • • • • • •	25 p0156 N80-14502 #
	• • • • • • • • • • • • • • • • • • • •	25 p0112 N80-11595 #
TREE-1365	• • • • • • • • • • • • • • • • • • • •	25 p0139 N80-13627 #
		,• · · · · · ·
TRW-33572-6001-R	υ-00	25 p0136 N80-13362*#
TRW-35515-6002-R	U-00	25 p0138 N80-13622*#
<del></del>	• •• ••••	25 90.50 800 .5022 .
UCID-17944-REV-1	*************	25 p0132 N80-12955 #
		25 p0125 N80-12569 #
0CID-10133-EE4-1	•••••	25 p0171 N80-15564 #
UCID-18195	• • • • • • • • • • • • • • • • • • • •	25 p0110 N80-11567 #
UCR/IGPP-78/19	• • • • • • • • • • • • • • • • • • • •	25 p0118 N80-11711 #
		-
UCRL-TRANS-11427		25 p0114 N80-11609 #
	*	20 Farry 201 11012 1
UCRL-13911	• • • • • • • • • • • • • • • • • • • •	25 p0133 N80-12960 #
	• • • • • • • • • • • • • • • • • • • •	
	• • • • • • • • • • • • • • • • • • • •	25 p0103 N80-10689 #
	• • • • • • • • • • • • • • • • • • • •	25 p0131 N80-12628 #
	• • • • • • • • • • • • • • • • • • • •	25 p0097 N80-10619 #
	• • • • • • • • • • • • • • • • • • • •	25 p0098 N80-10623 #
		25 p0177 N80-15628 #
UCRL-15087		25 p0177 N80-15633 #
UCRL-50046-77		25 p0159 N80-14529 #
UCRL-52496-VOL-1 UCRL-52546		25 p0177 N80-15626 #
UCRL-52546		25 p0164 N80-14571 #
UCRL-52548	• • • • • • • • • • • • • • • • • • • •	25 p0179 N80-15668 #
UCRL-52553-VOL-1	• • • • • • • • • • • • • • • • • • • •	
TCRT -52553-VOI -2	•••••	
UCRL-52553-VOL-2 UCRL-52583		25 p0181 N80-15995 #
	• • • • • • • • • • • • • • • • • • • •	25 p0125 N80-12570 #
	**************	25 p0140 N80-13638 #
UCRL-52758	• • • • • • • • • • • • • • • • • • • •	25 p0137 N80-13480 #
UCRL-52773-VOL-1	******	25 p0166 N80-14973 #
UCRL-81693		25 p0181 N80-15933 #
		25 p0115 N80-11618 #
		25 p0175 N80-15612 #
	•••••••	25 p0128 N80-12596 #
		25 p0103 N80-10688 #
	• • • • • • • • • • • • • • • • • • • •	25 p0120 N80-12201 #
	•	25 p0132 N80-12900 #
	• • • • • • • • • • • • • • • • • • • •	
		25 p0108 N80-11386 #
	• • • • • • • • • • • • • • • • • • • •	25 p0130 N80-12625 #
UCRL-82441		25 p0130 N80-12625 # 25 p0168 N80-15282 #
UCRL-82441 UCRL-82602	**************	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-11245 #
UCRL-82441 UCRL-82602 UCRL-82710	•	25 p0130 N80-12625 # 25 p0168 N80-15282 #
UCRL-82441 UCRL-82602 UCRL-82710	**************	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-11245 # 25 p0102 N80-10664 #
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721		25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-11245 # 25 p0102 N80-10664 # 25 p0159 N80-14528 #
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011		25 p0130
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011		25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-11245 # 25 p0102 N80-10664 # 25 p0159 N80-14528 #
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011		25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-11245 # 25 p0102 N80-10664 # 25 p0159 N80-14528 # 25 p0124 N80-12561 # 25 p0141 N80-13647 #
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011		25 p0130
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011 UCRL-83012 UDR-TE-79-35		25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15285 # 25 p0102 N80-10664 # 25 p0159 N80-14528 # 25 p0124 N80-12561 # 25 p0141 N80-13647 # 25 p0156 N80-14504 #
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011		25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-11245 # 25 p0102 N80-10664 # 25 p0159 N80-14528 # 25 p0124 N80-12561 # 25 p0141 N80-13647 #
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011 UCRL-83011 UDR-TR-79-35		25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15285 # 25 p0106 N80-10245 # 25 p0102 N80-10664 # 25 p0159 N80-14528 # 25 p0124 N80-12561 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0156 N80-14504 #
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011 UCRL-83011 UDR-TR-79-35		25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15285 # 25 p0102 N80-10664 # 25 p0159 N80-14528 # 25 p0124 N80-12561 # 25 p0141 N80-13647 # 25 p0156 N80-14504 #
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011 UCRL-83012 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7	79–1	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-11245 # 25 p0102 N80-10664 # 25 p0159 N80-14528 # 25 p0141 N80-12561 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0133 N80-12962 #
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-83011 UCRL-83011 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7	19-1 1-668783	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15245 # 25 p0106 N80-10664 # 25 p0159 N80-14528 # 25 p0159 N80-14528 # 25 p0144 N80-12661 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0133 N80-12962 # 25 p0092 N80-10374*
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011 UCRL-83012 UDR-TR-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-Sh	19-1 1-668783	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-11245 # 25 p0102 N80-10664 # 25 p0159 N80-14528 # 25 p0141 N80-12561 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0133 N80-12962 #
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011 UCRL-83012 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN US-PATENT-APPL-SN	79-1 1-668783 1-727444 1-809890	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-11245 # 25 p0102 N80-10664 # 25 p0159 N80-14528 # 25 p0141 N80-12561 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0133 N80-12962 # 25 p0092 N80-10377** 25 p01953 N80-10377**
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011 UCRL-83012 UDR-TR-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-Sh	79-1 1-668783 1-727444 1-809890	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-11245 # 25 p0102 N80-10664 # 25 p0159 N80-14528 # 25 p0141 N80-12561 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0133 N80-12962 # 25 p0092 N80-10377** 25 p01953 N80-10377**
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011 UCRL-83012 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN US-PATENT-APPL-SN	79-1 1-668783 1-727444 1-809890	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-1528 # 25 p0102 N80-10664 # 25 p0154 N80-12561 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0133 N80-12962 # 25 p0092 N80-10374* 25 p0092 N80-10377** 25 p0153 N80-14474* 25 p0153 N80-144474*
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82711 UCRL-83011 UCRL-83012 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN US-PATENT-APPL-SN US-PATENT-APPL-SN US-PATENT-APPL-SN	79-1 1-668783 1-727444 1-809890 1-848421 1-856465	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-1245 # 25 p0150 N80-10664 # 25 p0159 N80-14528 # 25 p0154 N80-12561 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0133 N80-12962 # 25 p0092 N80-10374* 25 p0092 N80-10377*# 25 p0153 N80-14474* 25 p0153 N80-14473*
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011 UCRL-83012 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN US-PATENT-APPL-SN US-PATENT-APPL-SN US-PATENT-APPL-SN US-PATENT-APPL-SN US-PATENT-APPL-SN US-PATENT-APPL-SN US-PATENT-APPL-SN	79-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-1245 # 25 p0109 N80-14528 # 25 p0159 N80-14561 # 25 p0159 N80-12661 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0158 N80-14504 # 25 p0159 N80-10374* 25 p0192 N80-10377*# 25 p0153 N80-14474* 25 p0153 N80-14473* 25 p0153 N80-14473* 25 p0153 N80-14473*
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011 UCRL-83011 UCRL-83012 UDR-TR-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN	79-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358	25 p0130
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82711 UCRL-83011 UCRL-83012 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN	79-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-991358 1-9903659 1-993619	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-15285 # 25 p0107 N80-14528 # 25 p0159 N80-14528 # 25 p0159 N80-14564 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0133 N80-14504 # 25 p0133 N80-14504 # 25 p0133 N80-14474* 25 p0153 N80-14474* 25 p0153 N80-14473* 25 p0153 N80-14473* 25 p0153 N80-14473* 25 p0153 N80-10361*# 25 p0190 N80-10361*# 25 p0190 N80-10361*#
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82721 UCRL-83011 UCRL-83011 UCRL-83012 UDR-TR-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN	19-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659	25 p0130
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82711 UCRL-83011 UCRL-83011 UCRL-83012 UDR-TR-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN	79-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-903019 1-916655	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15245 # 25 p0106 N80-15245 # 25 p0159 N80-14528 # 25 p0159 N80-14528 # 25 p0159 N80-14564 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0133 N80-14504 # 25 p0133 N80-14504 # 25 p0192 N80-10374* 25 p0092 N80-10377** 25 p0153 N80-14473* 25 p0154 N80-10361*# 25 p0104 N80-10709* 25 p0153 N80-14472*
UCRL-82441  UCRL-82710  UCRL-82711  UCRL-82711  UCRL-83011  UDR-TE-79-35  UDSE-TR-79-02  UMTA-VA-06-0053-7  US-PATENT-APPL-SN	79-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-903019 1-916655	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-15285 # 25 p0107 N80-14528 # 25 p0159 N80-14528 # 25 p0159 N80-14564 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0133 N80-14504 # 25 p0192 N80-10374* 25 p0192 N80-10377*# 25 p0192 N80-14474* 25 p0193 N80-14473* 25 p0193 N80-14473* 25 p0193 N80-10361*# 25 p0194 N80-10709* 25 p0195 N80-104472* 25 p0195 N80-10472*
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82711 UCRL-82721 UCRL-83011 UCRL-83012 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN	79-1 1-668783 1-727444 1-809890 1-844421 1-856465 1-891358 1-903019 1-916655 13-2888 19-572	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-1245 # 25 p0159 N80-14528 # 25 p0159 N80-14528 # 25 p0159 N80-12561 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0153 N80-14504 # 25 p0192 N80-10374* 25 p0192 N80-10377*# 25 p0153 N80-14474* 25 p0153 N80-14474* 25 p0153 N80-14474* 25 p0153 N80-14474* 25 p0153 N80-10361*# 25 p0153 N80-10374* 25 p0153 N80-10374* 25 p0153 N80-14474* 25 p0153 N80-14474*
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82711 UCRL-83011 UCRL-83011 UCRL-83011 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN	79-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-903019 1-916655 13-288R 19-572	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-15285 # 25 p0159 N80-14528 # 25 p0159 N80-14564 # 25 p0159 N80-14564 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0133 N80-14504 # 25 p0133 N80-14962 # 25 p0192 N80-10374* 25 p0192 N80-10374* 25 p0153 N80-14473* 25 p0153 N80-14474*
UCRL-82441  UCRL-82602  UCRL-82710  UCRL-82711  UCRL-83011  UCRL-83012  UDR-TE-79-35  UDSE-TR-79-02  UMTA-VA-06-0053-7  US-PATENT-APPL-SN US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-2	19-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-903019 1-916655 13-288R 19-572 19-588	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-1245 # 25 p0159 N80-14528 # 25 p0159 N80-14528 # 25 p0159 N80-12561 # 25 p0141 N80-13647 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0153 N80-14504 # 25 p0192 N80-10374* 25 p0192 N80-10377*# 25 p0153 N80-14474* 25 p0153 N80-14474* 25 p0153 N80-14474* 25 p0153 N80-14474* 25 p0153 N80-10361*# 25 p0153 N80-10374* 25 p0153 N80-10374* 25 p0153 N80-14474* 25 p0153 N80-14474*
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82711 UCRL-83011 UCRL-83011 UCRL-83011 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN	19-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-903019 1-916655 13-288R 19-572 19-588	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-15285 # 25 p0107 N80-14528 # 25 p0159 N80-14528 # 25 p0159 N80-14564 # 25 p0156 N80-14504 # 25 p0157 N80-14504 # 25 p0157 N80-14504 # 25 p0157 N80-1474* 25 p0157 N80-14474*
UCRL-82441  UCRL-82602  UCRL-82710  UCRL-82711  UCRL-83011  UCRL-83011  UCRL-83012  UDR-TE-79-35  UDSE-TR-79-02  UMTA-VA-06-0053-7  US-PATENT-APPL-SN US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-2	79-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-903019 1-916655 3-2888 19-572 19-588 19-627 8-DIG-8	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-1245 # 25 p0150 N80-10664 # 25 p0150 N80-14528 # 25 p0154 N80-12661 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0153 N80-10377*# 25 p0153 N80-10377*# 25 p0153 N80-14474*
UCRL-82441  UCRL-82602  UCRL-82710  UCRL-82711  UCRL-83011  UCRL-83012  UDR-TE-79-35  UDSE-TR-79-02  UMTA-VA-06-0053-7  US-PATENT-APPL-SN US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-2	79-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-916655 13-288R 19-916655 13-288R 19-588 19-627 18-5168 18-10-3	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0168 N80-15282 # 25 p0109 N80-15245 # 25 p0159 N80-14528 # 25 p0159 N80-14564 # 25 p0159 N80-14564 # 25 p0159 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0157 N80-14474* 25 p0153 N80-10374* 25 p0192 N80-10374*
UCRL-82441  UCRL-82602  UCRL-82710  UCRL-82711  UCRL-83011  UCRL-83012  UDR-TE-79-35  UDSE-TR-79-02  UMTA-VA-06-0053-7  US-PATENT-APPL-SN US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4	19-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-903019 1-916655 13-288R 19-572 19-588 19-627 8-D1G-8 8-10-3 8-61	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-15285 # 25 p0107 N80-14528 # 25 p0159 N80-14528 # 25 p0159 N80-14564 # 25 p0151 N80-12661 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0153 N80-14474* 25 p0153 N80-14474* 25 p0153 N80-14474* 25 p0153 N80-10361*# 25 p0153 N80-14474*
UCRL-82441  UCRL-82602  UCRL-82710  UCRL-82710  UCRL-82711  UCRL-83011  UCRL-83011  UCRL-83012  UDR-TE-79-35  UDSE-TR-79-02  UMTA-VA-06-0053-7  US-PATENT-APPL-SN  US-PATENT-CLASS-2  US-PATENT-CLASS-2  US-PATENT-CLASS-2  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4	79-1 1-668783 1-727444 1-809890 1-844421 1-856465 1-891358 1-903019 1-916655 3-286R 19-572 19-588 19-627 8-DIG 8 8-10-3 8-61 8-102A	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-1245 # 25 p0150 N80-10664 # 25 p0150 N80-14528 # 25 p0154 N80-12561 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0153 N80-14504 # 25 p0153 N80-14474* 25 p0153 N80-10374* 25 p0159 N80-10374* 25 p0092 N80-10374*
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82710 UCRL-82721 UCRL-83011 UCRL-83011 UCRL-83012 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4	79-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-916655 23-288R 29-572 29-588 29-627 8-DIG-8 8-DIG-8 8-DIG-8 8-10-3 8-61 8-10-3 8-61	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0168 N80-15282 # 25 p0106 N80-15245 # 25 p0159 N80-14528 # 25 p0159 N80-14564 # 25 p0159 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0157 N80-14474* 25 p0157 N80-14774* 25 p0157 N80-14774* 25 p0157 N80-10374* 25 p0092 N80-10
UCRL-82441  UCRL-82710  UCRL-82710  UCRL-82711  UCRL-83011  UCRL-83012  UDR-TE-79-35  UDSE-TR-79-02  UMTA-VA-06-0053-7  US-PATENT-APPL-SN US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-4	19-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-903059	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0168 N80-15282 # 25 p0106 N80-15245 # 25 p0106 N80-1245 # 25 p0159 N80-14528 # 25 p0159 N80-14528 # 25 p0159 N80-14504 # 25 p0156 N80-14504 # 25 p0157 N80-1474* 25 p0157 N80-14474* 25 p0157 N80-10374* 25 p0092 N80-10
UCRL-82441  UCRL-82602  UCRL-82710  UCRL-82710  UCRL-82711  UCRL-83011  UCRL-83011  UCRL-83011  UDR-TE-79-35  UDSE-TR-79-02  UMTA-VA-06-0053-7  US-PATENT-APPL-SN  US-PATENT-CLASS-2  US-PATENT-CLASS-2  US-PATENT-CLASS-2  US-PATENT-CLASS-4	19-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-913655 13-288R 19-572 19-572 19-588 19-627 18-DIG 8 18-10-3 18-1024 18-107 18-117	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-1245 # 25 p0150 N80-10664 # 25 p0150 N80-14528 # 25 p0154 N80-12561 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0153 N80-14504 # 25 p0153 N80-14474* 25 p0153 N80-10374* 25 p0153 N80-14474* 25 p0153 N80-10374* 25 p0154 N80-10374* 25 p0092 N80-10374*
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82710 UCRL-82711 UCRL-82721 UCRL-83011 UCRL-83011 UCRL-83012 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4	79-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-903019 1-916655 3-288R 19-572 19-588 19-627 8-DIG.8 8-10-3 8-61 8-10-3 8-61 8-10-3 8-61 8-10-3 8-107 8-117 0-300	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0168 N80-15282 # 25 p0106 N80-15245 # 25 p0159 N80-14528 # 25 p0159 N80-14564 # 25 p0159 N80-14564 # 25 p0159 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0157 N80-14474* 25 p0152 N80-14474* 25 p0152 N80-14474* 25 p0153 N80-14474* 25 p0153 N80-14472* 25 p0153 N80-14472* 25 p0153 N80-14472* 25 p0153 N80-14474* 25 p0153 N80-10374* 25 p0092 N80-1
UCRL-82441  UCRL-82710  UCRL-82710  UCRL-82711  UCRL-83011  UCRL-83012  UDR-TE-79-35  UDSE-TR-79-02  UMTA-VA-06-0053-7  US-PATENT-APPL-SN  US-PATENT-CLASS-2  US-PATENT-CLASS-2  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-4  US-PATENT-CLASS-6  US-PATENT-CLASS-6  US-PATENT-CLASS-6  US-PATENT-CLASS-6  US-PATENT-CLASS-6  US-PATENT-CLASS-6  US-PATENT-CLASS-6	19-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-900659 1-903019 1-916655 23-288R 19-572 19-588 19-627 8-DIG-8 8-10-3 8-61 8-1024 8-107 8-117 0-300 0-606 3-12	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0106 N80-15282 # 25 p0106 N80-15285 # 25 p0107 N80-14528 # 25 p0159 N80-14528 # 25 p0159 N80-14564 # 25 p0159 N80-14564 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0158 N80-14504 # 25 p0159 N80-10374* 25 p0192 N80-10374* 25 p0153 N80-14474* 25 p0154 N80-10374* 25 p0092 N80-10374*
UCRL-82441 UCRL-82602 UCRL-82710 UCRL-82710 UCRL-82711 UCRL-82721 UCRL-83011 UCRL-83011 UCRL-83012 UDR-TE-79-35 UDSE-TR-79-02 UMTA-VA-06-0053-7 US-PATENT-APPL-SN US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-2 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4 US-PATENT-CLASS-4	79-1 1-668783 1-727444 1-809890 1-848421 1-856465 1-891358 1-903019 1-916655 3-288R 19-572 19-588 19-627 8-DIG.8 8-107 8-107 8-117 0-300 0-606 3-12 3-82	25 p0130 N80-12625 # 25 p0168 N80-15282 # 25 p0168 N80-15282 # 25 p0106 N80-15245 # 25 p0159 N80-14528 # 25 p0159 N80-14564 # 25 p0159 N80-14564 # 25 p0159 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0156 N80-14504 # 25 p0157 N80-14474* 25 p0152 N80-14474* 25 p0152 N80-14474* 25 p0153 N80-14474* 25 p0153 N80-14474* 25 p0153 N80-14472* 25 p0153 N80-14472* 25 p0153 N80-14472* 25 p0153 N80-14474* 25 p0153 N80-10374* 25 p0092 N80-1

US-PATENT-CLASS-123-DIG.12	25 p0092	N80-10374*
US-PATENT-CLASS-123-3	25 p0092	N80-10374*
US-PATENT-CLASS-123-179R	25 p0092	N80-10374*
US-PATENT-CLASS-126-438		.N80-14473*
US-PATENT-CLASS-126-442	25 p0153	N80-14473*
US-PATENT-CLASS-136-89P	25 p0153	N80-14474*
US-PATENT-CLASS-175-78	25 p0104	N80-10709*
US-PATENT-CLASS-307-63	25 p0153	N80-14472*
US-PATENT-CLASS-307-66	25 p0153	N80-14472*
US-PATENT-CLASS-323-15	25 p0153	N80~ 14472*
US-PATENT-CLASS-323-19	25 p0153	N80-14472+
US-PATENI-CLASS-350-295	25 p0153	N80-14472*
US-PATENT-CLASS-350-296	25 p0153	N80-14473*
US-PATENI-CLASS-423-650	25 p0133	
05 THILBIT CHR55-425-050	25 p0092	N80-10374*
US-PATENT-4,033,133	25 p0092	NOO 403244
US-PATENT-4,133,697		N80-10374*
US-PATENT-4,157,655		N80-14474*
		N80-14423*
	25 p0104	N80-10709*
US-PATENT-4, 173, 397	25 p0153	N80-14473*
US-PATENT-4, 173, 820	25 p0153	N80-14474*
US-PATENT-4,175,249	25 p0153	N80-14472*
7000 P # C 70		
USCG-D-46-79	25 p0149	N80-13754 #
Name 400's a		
USFFE-1978-8	25 p0129	N80-12604 #
MMT. 4. 04.4		
OTIAS-241	25 p0119	N80-12189 #
TUT THE CON 1000 1 1111		
VKI-LEC-SER-1979-4-VOL-1	25 p0121	N80-12338 #
VKI-LEC-SER-1979-4-VOL-2	25 p0121	N80-12346 #
HMM DY 24		
VTT-EN-24	25 p0118	N80-11891 #
WEDC MAD 407		
WFPS-TME-107	25 p0132	N80-12898 #

1. Report No. NASA SP-7043 (	25)	2. Government Access	sion No.	3. Recipient's Catalog	No.			
4. Title and Subtitle ENERGY				5. Report Date April 198	0			
A Continuing B	A Continuing Bibliography (Issue 25)				6. Performing Organization Code			
7. Author(s)				8. Performing Organiz	ration Report No.			
-								
9. Performing Organization Na	ame and Address			10. Work Unit No.				
National Aeron	autics and	Space Adminis	stration					
Washington, D.		opaco mamini		11. Contract or Grant	No.			
				13. Type of Report ar	nd Period Covered			
12. Sponsoring Agency Name	and Address							
				14. Sponsoring Agency	Code			
15. Supplementary Notes	<del></del>		1	A				
		·						
16. Abstract	· · · · · · · · · · · · · · · · · · ·	<del></del>						
, 13. 11.								
This hibli	ography li	sts 1428 repo	rts, articles,	a <mark>n</mark> d other doc	cuments			
introduced	l into the	NASA scientif	ic and technica	1 information	n system			
from Janua	rv 1. 1980	through Marc	h 31, 1980.	•	t *			
, i om ourion	, .,		•	<b>.</b>				
					•			
					•			
	•							
47 (4. 19 ) (6. 19								
17. Key Words (Suggested by Bibliographies	Author(s)) Wind	Energy	18. Distribution Statement					
Energy Conversi								
Energy Policy			Unclassifi	ed - Unlimit	ed			
Solar Energy			2		<b>-</b>			
19. Security Classif. (of this re	port)	20. Security Classif. (o		21. No. of Pages	22. Price*			
Unclassified	•	Unclassifi	ed	414	\$15.00 HC			
<u> </u>	<del></del>	<del></del>		L	L			

#### **PUBLIC COLLECTIONS OF NASA DOCUMENTS**

#### **DOMESTIC**

NASA distributes its technical documents and bibliographic tools to eleven special libraries located in the organizations listed below. Each library is prepared to furnish the public such services as reference assistance, interlibrary loans, photocopy service, and assistance in obtaining copies of NASA documents for retention.

CALIFORNIA

University of California, Berkeley

**COLORADO** 

University of Colorado, Boulder

DISTRICT OF COLUMBIA

Library of Congress

**GEORGIA** 

Georgia Institute of Technology, Atlanta

ILLINOIS

The John Crerar Library, Chicago

**MASSACHUSETTS** 

Massachusetts Institute of Technology, Cambridge

MISSOURI

Linda Hall Library, Kansas City

**NEW YORK** 

Columbia University, New York

**OKLAHOMA** 

University of Oklahoma, Bizzell Library

PENNSYLVANIA

Carnegie Library of Pittsburgh

WASHINGTON

University of Washington, Seattle

NASA publications (those indicated by an "\*" following the accession number) are also received by the following public and free libraries:

**CALIFORNIA** 

Los Angeles Public Library San Diego Public Library

COLORADO

**Denver Public Library** 

CONNECTICUT

Hartford Public Library

MARYLAND

Enoch Pratt Free Library, Baltimore

**MASSACHUSETTS** 

**Boston Public Library** 

**MICHIGAN** 

**Detroit Public Library** 

**MINNESOTA** 

Minneapolis Public Library

MISSOURI

Kansas City Public Library St. Louis Public Library

NEW JERSEY

Trenton Public Library

**NEW YORK** 

Brooklyn Public Library

Buffalo and Erie County Public Library

Rochester Public Library New York Public Library

OHIO

Akron Public Library

Cincinnati Public Library

Cleveland Public Library

**Dayton Public Library** 

Toledo Public Library

**TENNESSEE** 

Memphis Public Library

**TEXAS** 

Dallas Public Library

Fort Worth Public Library

WASHINGTON

Seattle Public Library

WISCONSIN

Milwaukee Public Library

An extensive collection of NASA and NASA-sponsored documents and aerospace publications available to the public for reference purposes is maintained by the American Institute of Aeronautics and Astronautics, Technical Information Service, 555 West 57th Street, 12th Floor, New York, New York 10019.

#### **EUROPEAN**

An extensive collection of NASA and NASA-sponsored publications is maintained by the British Library Lending Division, Boston Spa, Wetherby, Yorkshire, England. By virtue of arrangements other than with NASA, the British Library Lending Division also has available many of the non-NASA publications cited in *STAR*. European requesters may purchase facsimile copy of microfiche of NASA and NASA-sponsored documents, those identified by both the symbols "#" and "\*", from: ESA Information Retrieval Service, European Space Agency, 8-10 rue Mario-Nikis, 75738 Paris CEDEX 15, France.

National Aeronautics and Space Administration

Washington, D.C. 20546

Official Business
Penalty for Private Use, \$300

SPECIAL FOURTH CLASS MAIL BOOK

Postage and Fees Paid . National Aeronautics and Space Administration NASA-451





POSTMASTER:

If Undeliverable (Section 158 Postal Manual) Do Not Return

## NASA CONTINUING BIBLIOGRAPHY SERIES

FREQUENCY	TITLE	NUMBER	
Monthly	AEROSPACE MEDICINE AND BIOLOGY	NASA SP-7011	
	Aviation medicine, space medicine, and space biology		
Monthly	AERONAUTICAL ENGINEERING	NASA SP-7037	
	Engineering, design, and operation of aircraft and aircraft components		
Semiannually	NASA PATENT ABSTRACTS BIBLIOGRAPHY	NASA SP-7039	
	NASA patents and applications for patent	46	
Quarterly	EARTH RESOURCES	NASA SP-7041	
	Remote sensing of earth resources by aircraft and spacecraft		
Quarterly	ENERGY	NASA SP-7043	
	Energy sources, solar energy, energy -conversion, transport, and storage		
Annually	MANAGEMENT	NASA SP-7500	
	Program, contract, and personnel		

Details on the availability of these publications may be obtained from:

SCIENTIFIC AND TECHNICAL INFORMATION OFFICE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Washington, D.C. 20546